The Builder.

Vol. XVI.—No. 828.

London Streets, Bridges, and Railways.

THE overcrowded state of the City streets and bridges again excites public attention, and there seems to be a growing disposition on the part of the metropolitan authorities to provide a remedy for the admitted evil. For years past the subject has been discussed at intervals, by the Common Council, by Parliament, and at public meetings; but whilst many judicious recommendations have been made, next to nothing has been done. Every succeeding inquiry serves to prove the steady increase of the pressure, and it is daily becoming more obvious that the traffic of this vast metropolis is fast outgrowing the means provided for its accommodation. The "blocks" of thoroughfares—at Temple-bar, in the Poultry and Cheapside, and especially on London-bridge—are daily cause of inconvenience, accident, and loss; nor does the pressure seem in any degree to be abated by the occasional new streets that are opened out, and old ones that are improved and widened,—these measures falling far short of the actual necessities of the case.

Every one familiar with the traffic over London-bridge is aware of the gorged appearance which that great thoroughfare presents at certain hours of the day. Though the police arrangements for the separation of the fast and slow traffic into lines of continuous vehicles are most admirable, it is found impossible to prevent occasional "blocks,"—the number of vehicles which concentrate upon that point of crossing between the two sides of the Thames being so enormous. Arithmetical figures can give only a faint idea of the magnitude of this traffic; but it may be mentioned that upwards of 60,000 foot passengers and 18,000 vehicles cross the bridge daily between eight a.m. and eight p.m.

The aspect which the bridge presents between ten and eleven in the morning, and four and five in the afternoon, is especially remarkable. During each of these two hours there pass before the eyes of a spectator stationed on the bridge, about 7,000 persons on foot, and 1,800 vehicles of all sorts,—a traffic unequalled in any other thoroughfare in the world.

The pressure at the Exchange, in Cheapside, Ludgate-hill, Newgate-street, and at Temple-bar is, at certain hours, as severe as on London-bridge, though the number of vehicles passing is not nearly so great; the police regulations, which so much facilitate the movement of traffic across the bridge not being so available in the narrow thoroughfares of the City, where the frequent stoppages of omnibuses to take up and set down passengers, and of cabs and vans at shops and warehouses, often occasion protracted "blocks" of the streets. And if we take the thoroughfares running north and south, we there find the pressure comparatively moderate. The great bulk of London lying chiefly along the valley of the Thames, the principal traffic is east and west, in lines nearly parallel with the river, rather than north and south. Mr. Haywood, the engineer to the City Sewer Commission, appended to his last Report an instructive statement of the number of vehicles passing through certain thoroughfares of the City, between eight a.m. and eight p.m. on certain days in 1857. They were as follow:—

	Total.	Highest number in any hour.
London-bridge	18,179	1,841
Cheapside	13,819	1,261
Ludgate-hill	10,626	1,164
Holborn-hill	10,078	1,024
Temple-bar	9,883	1,103
Newgate-street	8,341	890
Aldgate High-street	6,503	625
Bishopsgate-street Within	6,283	684
Fenchurch-street	6,278	699
Gracechurch-street	6,207	599
Cornhill	5,256	539
Finsbury-pavement	5,063	540
Smithfield-bars	3,246	335
Aldersgate-street	2,719	284

It will be observed, from these figures, that by far the heaviest traffic is over London-bridge, and that the relief of that great thoroughfare is therefore the most pressing object. From a recent discussion which took place in the Common Council, it appears that the construction of a footway for passengers, overhanging the eastern and western sides of the bridge, long under consideration, at an estimated cost of about 25,000*l.* has been abandoned. The arrangement proposed would enable the entire centre of the bridge to be appropriated for the purposes of the carriage traffic. But it is doubtful whether, if adopted, this measure would effectually meet the difficulty, while it might injure the appearance, if not the stability of the bridge. How the relief can best be accomplished, will be obvious on a consideration of the causes which have led to the concentration of so much traffic at that point. The first is, that London-bridge forms the only passage for vehicles between the two sides of the Thames for sixteen square miles to the eastward of its site. Another is, that much of the Southwark traffic now passes over London-bridge, which would naturally pass over Southwark-bridge if the tolls there were removed. But the third, and by far the most important, cause of this pressure of traffic is to be found in *the railways* which have their termini at the south end of the bridge.

This will be at once understood on a statement of the fact, that in ten years the number of persons passing through London-bridge Station has increased from 624,000 to thirteen millions and a half! Here we have the increased pressure at this point at once accounted for. The great bulk of these railway passengers are proceeding to and from the City and the western parts of London, and must, therefore, cross the Thames by one or other of the bridges. At least nine-tenths of the whole cross the nearest, which is London-bridge,—nearly thirty thousand on foot, ten thousand in cabs, and the remainder in omnibuses. It has further been ascertained, by careful inquiry, that a large proportion of those railway travellers who cross the bridge are destined for parts west of Holborn and Temple-bar; and hence, to reach their destinations, they have to pass through the City thoroughfares in cabs, carriages, and omnibuses,—the humbler classes mostly proceeding westward by the river boats plying to and from Hungerford-pier. The extent to which the thoroughfares are crowded by this flow of traffic westward may be inferred from the fact, that 2,010 omnibus journeys are daily performed between London-bridge Station and places west of Temple-bar, the whole of which pass through the City by the Poultry and Cheapside.

While we are most anxious that the various main lines of railway debouching in London should be connected, the present break being a preposterous absurdity, the true mode of dealing with the evil, so far as pressure and overcrowding occasioned by railways are concerned, would seem to be, to *distribute* the traffic, and *not to concentrate it*; to provide more stations at which passengers can be landed at various points, and not to converge the passengers of many railways into one central focus. To revert to the most crowded thoroughfare of all—that of London-bridge—it is obvious that, if the railways now terminating at the south end of that thoroughfare were carried forward towards the western parts of London, and more especially if they could be extended across the river to a station on the north bank, so that the West End passengers might avoid the necessity of crossing any of the bridges, a great relief of the present overcrowded City thoroughfares would at once be effected.

A measure of this sort, we may state, is in actual contemplation, carrying out the recommendations of the select committee of the House of Commons in 1855; and it is proposed to extend the London-bridge railways westward through Southwark to a station on the north bank of the Thames at Charing-cross. Stations, provided at the crossings of the great thoroughfares leading to and from the Southwark, Blackfriars, and Waterloo bridges, will enable the traffic to be distributed at many convenient points; and by this great improvement, combined with the removal of the tolls from Southwark-bridge, London-bridge and the City thoroughfares would immediately experience a decided and effectual relief.

We may add, too, that by means of the proposed extension of the West London Railway across the Thames at Battersea (which would connect the railways on the north with those on the south), the proposed station at Charing-cross would be available for the Great Western and North-Western lines.

For the accommodation of the vast street traffic between the West End and the City, the plan of omnibus railways, under proper arrangement, advocated by us long ago, seems to be by far the most suitable. By this means omnibuses running upon sunk rails, occupying the centre of a broad thoroughfare, leading to and from the West End, would provide an immense amount of accommodation, and effectually relieve Fleet-street, Newgate-street, and the other narrow gorges leading into the City. The construction of such new thoroughfare would no doubt be costly, but the pressure of the street traffic is now so great that further expenditure to provide new streets, or widen existing ones, cannot longer be avoided; and, when the work is entered upon, it ought to be conducted upon a plan that will at all events possess the merit of completeness and efficiency.

THE POSITION OF ARCHITECTS AND CONTRACTORS.

Myers v. *Sarl.*—This arbitration is dragging its slow length along. If its present course be persisted in no one can say how many months it may not last. There sit the defendant and his advisers, and demand, item by item, proof of the appropriation of every hod of mortar and foot of deal in the accounts made out by his own surveyor, and admitted to be correct by his own architect. We care nothing for either side in this case: we know nothing of special circumstances, if they exist; but, looking at the broad facts as laid before the arbitrator, it is our duty to say, in the interest of the profession, that if the law permit such a course, it is time architects thoroughly understood it, and took steps to ensure their safety. Upon whom are the expenses of this ruinous affair to fall? It has been calculated that the cost of each meeting is at the rate of *six shillings and sixpence per minute!* So that when the defendant's counsel demands to be informed where certain items of a weekly account (admitted to be correct by his client's own architect, and made into a bill by his own surveyor), were used, and is at last answered or not according as documents or witnesses may serve, twenty times the value of the items in question have been expended in the inquiry! Admit for an instant that defendant succeed in convincing the arbitrator that he is not bound to pay for work (in some cases ordered in his own presence by his own agents), for which a written order is not produced. What is then the position of architect and contractor? It is not impossible that at common law, if the latter prove the work was done by the order of the architect, the architect might be declared liable; and that, too, in a case where not merely the employer has the benefit of the work done, but where a deduction has actually been made from the amount of the contract for work rendered unnecessary by the new order given by the architect! For example, it is urged that if an architect put down, say 20*l.* for concrete, and then direct the contractor to execute concrete to the amount of 25*l.* the 20*l.* must be deducted; but, that unless there be a written order, the employer would not be liable for the concrete supplied!

In the recent case, *Skeife* v. *Deakes*, reference was made to the necessity for a written order even in the case of a substitution. The committee, however, if we are correctly informed, had passed a resolution to the effect, that for works which were intended by the architect to be in lieu of some provided for in the contract, a written order need not be given; and Lord Campbell accepted this resolution in lieu of written orders so far as it applied. The arbitrator in the present and other cases should not overlook this decision of Lord Campbell.

Architects need to be most careful in their proceedings. Their position is serious, and the sooner a committee be appointed to inquire into it, and to take steps to improve it, the better—not merely for them, but for the public.

ARCHITECTURE OF OUR DAY.

STYLE AND CHARACTER.—THE CITY OF LONDON.

It is obvious that in the present state of taste, much importance as regards the future belongs to right estimation of the work in building and architecture, produced so largely in quantity of late years; therefore we need to offer little explanation of the reasons inducing us to return to the subject of that portion of the work which has contributed to the decoration, or to the extension of the metropolis. Progress in our art, we believe, is impeded as much through the too frequent and unjust depreciation of productions such as would be advancing in their tendency—are, perhaps, excellent in any view,—as it suffers from the perpetration of work absolutely bad. The public, hardly yet sensitive to the real art, know not what guidance to take, or how to respect expressions of opinion from professors and lecturers who only contradict one another just where they should be moving to one end. It cannot but be concluded by us, that "authorities" of the kind referred to, have come to their views from no true appreciation of *art*, but from their prejudices in favour of style,—forgetting what is perfectly demonstrable, that good art is compatible with modern building under any designation of architectural style as used; and that there is really no produce of architect's labour possible, but that which is nineteenth-century work, combining art, or otherwise what is only imitative work, however clever as such, having of its very nature no art.

In such controversies as we are now witnessing on the subject of appropriate style, it is unworthy of a body of artists to have any participation: they serve only to distract the attention from the real object of pursuit—the art. It is a condition of all good architecture, whatever the style, that the primary wants and the associations of the time, with any which may be peculiar to the country, should be fully provided for and harmonized with. No laboured inquiry in Commitee of Parliament was needed to show that any style as a first basis, if used with full regard to the conditions just named, could at last be made to culminate in works of the highest order of architectural merit. But, the question really important is—as we urged some time back,—which style, having regard to its present use and the public appreciation, and to the extent of the alterations needed in it, will soonest bring us to that general perception of the *art*, which once excited, will secure the further and continual progression of architects and architecture.

It was not, however, the purpose of our article to pursue this subject in all its bearings, tempting though the effort for us might just now be. We wished merely, in the interests of art, to claim that due attention be given to the fact that London, like several of the chief towns in the country, has now achieved a considerable number of works, having great merits, and having only those defects which are irrespective of style, or would have arisen under like circumstances in any style,—to the fact that these works are not Gothic, and that they are equally not exotic and foreign, whatever their style may have been called through reason of the difficulties of nomenclature; but that they are the true produce of the country as of the time,—as much "native indigenous art" as the plays of Shakspeare, or as the works that any nation ever claimed as its own, having originally imported certain features; whilst that they show that all the elements of good architecture—those pertaining to convenience, to real and apparent strength, to grace and ornament, and to living character of art—can be attained in the style which has been called "Italian," and which was naturalized throughout the length and breadth of the land with the growth of the best part of our national poetry, our philosophy, our liberties, and our reformed religion. It is to be hoped that through an act of the Government authorities, we may not again enter upon one of those periods of experiment, perhaps ending right, if only followed to the legitimate issue, but which, heretofore, have had the effect of retarding the course to the general popular appreciation and practice of art,—distracting and taking us round about instead of forward, or, in opposition to every law of progress, trying to recommence from a point back, and having always a tendency somewhere before the right course be regained, to veer off on to the line of some other whimsy.

For the present, we leave this question and proceed to offer further information as to works which, we believe, may be fairly taken as evidence of that good position, on the whole, of British architecture, which we would not endanger. In our last articles, after speaking of some of the features of the buildings of the City, in which good art was shown, we adverted to the use of coloured materials and difficulties attending it; and also to the use of stone, now so common—as obviously inducing or allowing much of that study of detail whereof results were to be observed.

From the generalization as to defects of predominant employment of colour, we ought perhaps now to except the premises of Messrs. Shaw and Sons, in Fetter-lane, some distance, indeed, from the part of the City we have been chiefly looking into, and also not a work of last year's date, but which it may be well to instance as remarkable both for variety of colour in the details of brickwork and tile-work, and for the general breadth and unity which are retained. Here, also, large windows and narrow piers are shown to be quite compatible with effect of strength as with other architectural requisites. The warehouse-uses of the building are well provided for, as in the case of the basement,—the cost of the whole being 2,600*l*. Professor Donaldson was the architect. A design of plainer character, so far as use of colour is concerned, is that forming the sides of a court at No. 11, Aldersgate-street (the premises of Mr. Maw, surgical-instrument maker), where, besides the general merit in outline and grouping, and the manner in which the red and white bricks in simple courses are used, there are features of detail, such as the porch, and the window-frames with staff-beaded mullions and mouldings at the head (on the chord of the segmental arch of opening), which, in the result, indicate to how great an extent freshness of invention in such matters, thereby made attractive in themselves, will contribute to, and be well repaid in effect of a whole. Mr. H. B. Garling was the architect.——The shop and house-front of Messrs. Lloyd, Brothers, the printsellers, in Gracechurch-street, is certainly one of the best examples of polychromy, as predominant, and as attaining a generally successful result, that the City affords. What may be managed even in an old front, and where the usual shop-window surface is asked for, is very well shown. The iron story-posts are cast with a peculiar corbelling beneath the brestsummer-ends to afford the requisite idea of support, the window itself being recessed; whilst through the treatment of the cove between the window and brestsummer, decorated with figures painted and emblematic of Drawing, Painting, and Sculpture, and the large window-opening of the floor above, the eye is not attracted to appearance of what, in common cases, is glaringly unstructural, and therefore fatal to any attempt at architecture which there may be in a general front. The metal shafts in the upper window are of Renaissance character, with light bracket-like additions at the top; and they may be mentioned as indicating the treatment that would be applicable to iron columns and shafts in preference to any imitation of forms which the eye has got accustomed to see in masonry. Much of the design is expressed in encaustic tile-work, filling in panels; and the frieze is in Minton's porcelain, from a well-known design by Mr. M. Digby Wyatt, who was the architect of the building here noticed. The decoration of the upper story takes the arrangement of a frontispiece of pilasters with curved pediment—applied as a sort of surface-work on the face of what seems to be the old brickwork, lead-coloured as a background.

The best exemplification of artist-like application of colour, however, is the Crown Life Insurance Office, in Bridge-street, Blackfriars, by Messrs. Deane and Woodward, which building is noticeable, indeed, for other excellent qualities. The colour here, in the bands and voussoirs, is just so far prominent in tone and lustre as to produce some variety, without interfering with the effect intended by the leading structural and ornamental lines and forms; and in the shafts and small medallions of the windows, where are materials of darker tone, the quantity of such colour is small, and, as used, even aids by emphasis the structural element of effect. The materials in the front are Portland stone, red and grey granite, Sicilian marble, and perhaps others, and in some cases polished. The design is commonly described as Venetian-Gothic; and doubtless many of its ornamental details bear resemblance in character to the Gothic; but the Byzantine and Saracenic features are so prominent, that the whole effect is very different from that of Gothic, to an English eye. Arches, with the voussoirs pointed on the *extrados*, here used, and the circular-headed window with sub-arches and a central shaft, were common in the palaces of Florence, and have been in similar manner adopted lately in many of our buildings of the Anglo-Italian school. Indeed, there can be no limit to the use which one style may make of the details of another, provided only that the leading character of the style be not exchanged for a whole having no character at all, and provided any radical change from one popular fieldwork of style to the other be made in due progression, as contrasted with that merely experimental and revolutionary system of change which prevailed in the first half of this century. The features we have mentioned give the chief character to the design now under notice. The result of some of them, we apprehend, is that rooms are not lighted so well as might be desired. Besides these features, however, should be named the horizontal cornice, in lieu of the gable common in the English Gothic,—though scarcely so in the continental styles,—and which cornice is a mere square member cut along the angle into dog-tooth ornament, and carried on blocks. The cornice and strings give a general horizontality harmonizing with the similar character of the neighbouring buildings. This harmony is required in such cases, speaking without reference to merit or otherwise of the buildings as last named. The wooden dormers are more English in appearance. Much of the effect, however, is derived from the ornament to the capitals and strings. This, in itself, though somewhat imitative or naturalistic in character, has not the less, considerable beauty and character of invention. The best point in it is relative to effect attained either without much projection, or by placing the ornament in a hollow with a sufficient covering in the way of fillet. The combination of foliage with animal forms is in many respects excellent as architectural ornament: there is incident and life in it, though there be no clear allusion to the purpose of the building. The windows have double reveals: the piers of the two principal stories have regular capitals and bases; and the piers above, impost mouldings to carry arches and labels. The gable-canopy or label to the entrance-doorway, has in the hollow a representation of a chace of animals—clever, though rough in execution. The enclosure to the area is a dwarf wall of granite. The rain-water pipe is spirally painted—red on bronze colour.

But, good effect results from the use of polished granite, and sometimes where the architecture otherwise would be unworthy of notice. This is to be observed in pilasters, friezes, and voussoirs to buildings or shop-fronts in or about Cornhill—where the dimensions of the slabs or pieces allow the beauty of the material and the idea of strength to impress themselves upon the observer. The material, nevertheless, demands great care in design. Messrs. Sarl and Sons' premises, as to the large pilasters and the shafts of small columns; the Colonial Life Office, as to the general masonry (partly unpolished) of the basement, and the English, Scottish, and Australian Chartered Bank, in regard to the piers and voussoirs of the wide arch in the lower story; the porch of St. Michael's Church, Cornhill, and lower stories to buildings in Tower-street, the Poultry, and other localities, as to shafts for openings and arcades, afford examples of the effect in designs which each have general merit; whilst Messrs. Waterlow and Sons' premises, in Birchin-lane, and Messrs. Barker and Smith's, at the corner of the same street, supply illustrations of the value of the materials—although in general work less open to commendation. In the shop-front to the premises last mentioned, the granite is used for plinth, frieze, and cornice, the framework for the glass being formed with iron shafts, except the angle, where there is no apparent support, and with arches in iron-work, having open-work spandrils: yet despite the want of principle in one respect, there is a certain result from the treatment,—showing the value that there is aesthetically in mere material, though at the same time the force—destructive, so to speak,—which so excellent a material as the polished red granite

may exert over the other parts of a design—those in ordinary stonework. Colour, like fire, is "a good servant;" but it may equally become a master, and produce a general effect very different to that which the designer intended. It may be not easy to give the reasons for the difference in treatment between exteriors and interiors, which now universally is recognised as satisfactory to the eye. There are, it is true, the precedents of external polychromy amongst the Egyptians and the Greeks; but admittedly, great caution ought to be exercised in adopting them. The Greek precedents, like the Saracenic, still indicate the recognition of a distinction between the circumstances we have named,—especially so, if we consider the Pompeian examples as Greek, from their locality, or in their origin, and if we regard the chief remains of colour discovered by Mr. Penrose, on ceilings, as belonging to quasi-internal portions of the building; and the arguments recently advanced by amateur critics may be resolved into arguments for glazed surfaces rather than for colour, and as not showing what would be preferred by the same persons were the smoke nuisance abated, as there is reason to hope it will be. Even under existing circumstances, the surface of stonework might be kept in its pristine beauty continuously, were the method practised which has been so often spoken of as adopted at the Bank of England, namely, simple washing, as with a fire-engine. Now, however, the decadence in architectural beauty of the London buildings is certain and rapid; and it is necessary to refer to it as one of the reasons (others having been already mentioned by us) why architecture is not appreciated, and why works of the class we are speaking of, do not at once present themselves to the recollection when the merits and future prospects of our art are in debate.

The object, then, in use of colour externally, should be only the production of a moderate amount of variety, akin to the object in varying the dressing of the surface of masonry, where the slightest change in the tooling or picking is of wonderful value in this respect. We apprehend that the headers in patterns, in the Mediæval brickwork, were introduced according to a similar principle, or that they consisted of such bricks as chanced to have been burnt dark in shade, rather than bricks artificially coloured and profusely used, as in the modern imitations of Mediævalism. On the same principle, whilst we should deprecate introduction of black and white chequers, such as are to be seen in some Italian edifices, and whilst we are offended with the use of bands of colour in marked contrast, as we are with the brickwork of some of the midland counties, where every "header" shows a white end, we regard a variation of tint and surface such as will not draw the eye from the structural forms, as very greatly serviceable to the architectural effect. The desire for this is the real reason for the prevalence of the imitations of woods and marbles—questionable in some respects though such work may be. Otherwise, on exteriors, colour, as we have said above, should be used, if at all, only with extreme care for emphasising features in the structure, or in the manner of jewellery, as in the medallions of a frieze.

We shall pursue the general subject of architecture in the City of London, in another article.

THE GEOMETRIC TREATMENT OF SCULPTURE.*

THOSE who at the last meeting in this room heard the very interesting paper contributed by Mr. Bonomi, "On the Proportions of the Human Figure," as laid down by Vitruvius, Leonardo da Vinci, and others, will deem me fortunate in having been preceded by a theme which so aptly introduces that of this evening. I feel this the more, inasmuch as the theory of the proportions of the human figure, quite a sculptor's subject, was then received and discussed in a spirit which showed how much interest was taken in it by the architect, and how ready he is to welcome it as connected with his own department. It is natural that this should encourage me in presenting the following remarks to you on a subject of a somewhat kindred nature.

The following little paper on the Geometric Treatment of Sculpture has arisen from the suggestion of one of your honorary secretaries, Mr. Digby Wyatt. Its title will be accepted, I think, as grouping together conveniently some considerations of much importance in the association of my art with yours, and on which I venture to offer a few remarks. These may afford, at least, a sculptor's view of the subject, which has here the best chance of being checked and guided by that of the architect. If anywhere I perchance use a tone of assertion, pray do me the justice to consider that it is only for shortness, and not from confidence.

What, then, may the title "Geometric Treatment of Sculpture" be held to imply? Using the word geometry in its accepted sense, I would submit, that selection of forms and masses founded on lines of geometric contour, as straight, square, circular, elliptical, pyramidal, or wave-like, &c. which especially suit sculpture for the purposes of harmonious decoration.

Now, although no doubt a work of sculpture, as a unit, and isolated, is the better for being of a symmetric outline, and well balanced and adjusted in itself as an ornamental form, yet still more is this the case when it is regarded in reference to those situations in which sculpture is usually placed, which also, I conceive, may nearly all, more or less, be considered architectural. In a garden, for instance. Those gardens which are suitable for such decorations as vases, statues, or fountains, are more or less on a symmetric plan, and may all in degree be considered as extensions of the house itself to which they are attached,—as its outer works, as it were, and as affording apartments with walls indeed, but with no roof but the sky. Under this aspect, none of such decorations of art as are introduced in these situations are altogether beyond and without the bounds of architecture, but their effect will be influenced in a large degree by the same laws under which they appear within the immediate courts, halls, and apartments of the edifice itself. When, therefore, a work of sculpture on its pedestal is placed in a garden, the two together, as a mass, will have the best effect if they justly subserve some theory of decorative arrangement which requires in that spot an architectural feature of that quality. I say this in order to acknowledge that, even when not directly associated with architecture, it may be very well for sculpture to hold itself bound by the same ties of geometric harmony as if in nearer relation.

Of course, when more closely connected with the sister art, as in statues to fill niches, relievi to occupy panels, figures to become the finials of columns, or extended and diversified compositions to adorn and enhance the tympanum of a façade or the summit of a triumphal arch, the geometric treatment of the sculpture becomes more intimately an architectonic question. So vital a one indeed does this appear in these cases, as regards the eventual effect of both the building that is to be adorned and the sculpture that should adorn it, that there seems but a remote chance of a happy result, unless a geometric laying out of contours and masses, and light and shade, has formed the ground-work of the design. In such cases the most delicate and artistic detail will fail to make up for deficiencies in geometric plot, which latter consideration, however, having been regarded, no doubt the more beauty of finish in details the better, as the Athenian has so well illustrated in the exquisite workmanship of those figures which remain to us from the tympana of the Parthenon, which were viewed at an elevation of more than 50 feet.

It appears, therefore, that sculpture should never lose sight of those family ties which bind it to architecture, and by which so much mutual benefit is to be attained. The freedom of sculptural lines which she draws from the contours and movements of vital forms may well give flow to the stricter types and masses of architecture, while, on the other hand, the latter, spreading out and aspiring more under the steadfast laws that inform the mineral kingdom, may lend in turn to sculpture the most valuable hints of geometric construction. And this holds even in cases where the sculpture is not in direct association with architecture, but is a principle also affecting the art by itself, insomuch that a work of sculpture is ever the more perfect in itself when its general contour possesses that quality and character of geometric symmetry which fits it for an architectural decoration.

In illustration of these remarks I have selected a few works of ancient and modern sculpture, which you see before you. I have necessarily been limited in my selection, and I have also thought it best to obtain small copies of these works instead of the large originals; and the more so, inasmuch as my present theme only relates to the general treatment of mass and line, which these reductions will serve to illustrate pretty nearly as well as the larger originals, some of which also would have been out of the question to bring here. In these examples, familiar because they are good, like the good tunes in the streets, the eye acknowledges, I fancy, at once the advantages of geometric treatment and balance which they possess, and in which they advance the valuable precedents of the best masters.

It may be, however, as well to make here, *in limine*, an acknowledgment that there are exceptions to these precedents. In such cases, however, we cannot tell how far such examples as do not possess this even adjustment were intended to act as one of a pair; in which case, although when considered as units they do not balance, yet as parts of a twin decoration, they might do so most agreeably, as is the case with the ears of a sarcophagus, or the handles of a vase, which as units are irregular, yet as a pair regular, and though singly uneven, yet when justly disposed, are mutually responsive, as is seen in the two side figures of the Medici tomb before you. Had either of these two figures been found separately and alone, in an ancient ruin, its form would have been deemed irregular; but as they exist now according to the artist's original plan, they are an apt example of geometric and responsive arrangement. I may as well acknowledge, however, that the more I see of works of art the more vain it appears to me to attempt to erect *perfect* canons of taste or treatment. A perfect canon in such matters appears as impossible an existence as that of a perfect specific in medicine. Thus in this case, although geometric treatment is undoubtedly an element of fine sculpture, and although certain cases of apparent divergence from this rule may be argued away, yet without pedantry or special pleading, it cannot but be allowed that there are some noble works which appear to play truant to these rules. This remark, however, chiefly applies to figures in the round, in which in any decided action it will be recognised at once that a form of geometric symmetry could scarcely be obtained in all views. In these cases it will be admitted that that arrangement is the most happy which gives the front and principal view, with the best balanced decorative form.

The noble statue of the Belvidere Apollo, and the Borghese Diana, are in some views of an irregular contour, and yet in others they present one sufficiently geometric to render them suitable for central forms without a pendant, especially in the centre of an ample space, and comparatively aloof from such lines of architecture as would emphasise their departure from the balanced character of an architectural finial. Although, however, some views of these and other figures may be irregular, yet I conceive that even in these cases, the desire is perceptible to obtain, as much as the subject and action admitted of, a well balanced and geometric form. Also with respect to the above-mentioned two statues, we do not know how they were originally placed. The colossal crusco-elephantine works of Pheidias, the Jupiter at Elis, and the Minerva of the Parthenon, are recorded as having been evenly balanced works, while we are also informed that they were symmetrically placed within the temples that contained them.

Without further introduction, I would now advert to two forms of geometric character, to which various of the best works in the round of ancient and modern sculpture appear to incline. It is on this account, and on that of their simplicity, that I speak of them especially, and not, of course, with any idea of excluding other geometric resemblances or types. I allude to the forms of the Pyramid and of the Vase. These are types which not only mould the masses and contours of compositions in the round, agreeably as sculpture *per se*, but by the same influence suit them for the purposes of architectural enhancement. In regarding examples of these treatments, however, we must not, of course, expect perfect pyramids or perfect vase forms. The conditions of vital forms are not such as to be confined within limits so rigid, and we can only expect such coincidence as may evidence the plan of their geometric conception. In some works, also, we shall perceive the pyramid tail, like an isosceles triangle, in others flat, and spread out as in the Dying Gladiator, or the exquisite figure of Eve by Baily, which is before you in small (a joy for ever as long as sculpture lasts). In one statue or group we may recognise the contours of a tall vase; in another, that of a broad wide one, as in a seated figure. The grand and expressive group of the Laocoon aims evidently at a pyramidal form, though this is somewhat blown aside by the gust of passion and of pain. The great group of Dirce and the Bull, of which there is a full-sized cast at the Crystal Palace at Sydenham, is on a similar principle, as it is, at some sacrifice, made more or less pyramidal on all four sides. The group of Niobe and her youngest Daughter, among other works, evinces an intention towards this form, and in most of these there is a near coincidence with that of a flame of fire, which has ever a tendency

* Read at the Institute of British Architects, as elsewhere mentioned, by Mr. John Bell.

towards the pyramid. Milton speaks of Satan, when touched by Ethuriel's spear, as springing up "like a pyramid of fire," and even the word pyramid is derived from this source. This form is also finely present in the general composition of the tombs of the Medici, as illustrated by the engravings before you; in which, although the parts are so boldly cast about, and so grandly diversified, yet this is effected without disturbing the general geometric arrangement which is here so finely preserved.

As I can only touch lightly on the details of my subject, I will now pass on to the second form I have indicated as frequent in fine statues and groups, that of the Vase, and to cite some examples which partake of the general form of a vase-like finial, of which a few familiar examples are before you. The outline and general contour of the far-famed Venus de Medicis affords, especially in the front view, the general balance of a vase-like finial. The Eracles of Glycon, commonly called the Farnese Hercules, although a figure as far removed as possible from this in character, has a similar quality of arrangement, only it is wider at the foot. Both these statues possess, to a great degree, in their principal view, an evenly-balanced vase-like contour. And this quality, no doubt, has had a very large part, along with their other merits, in obtaining for them that great popularity which they have ever enjoyed. They were more repeated in ancient art than any other statues; one great cause of this being, no doubt, that, in consequence of their geometric arrangement, they were found so very convenient as architectural decorations, and we sculptors may well keep this point in mind when we desire a wide-spread public for our efforts, and try to work for posterity. The cloaked figure of the Phocion, also before you, presents a similar character of contour, illustrating the application of a vase-like outline to a portrait statue.

There is, however, another well-known treasure of ancient art that still more presents perfection as a vase-like finial, viz. the well-known classic group of Cupid and Psyche embracing, of which a little copy is before you. Turn it which way you will, in each view it preserves the just balance, elegant proportions, and general mass of a tall taper vase. In this exquisite and graceful group we possess a charming example of geometric balance and contour applied to the human form, and of the perfect coincidence of the architectural, decorative, and sculptural elements. Again, accordingly, has ancient and modern repute followed this combination of merits, and in later times this group has been more frequently introduced into paintings than any other work of sculpture.

I have before alluded to my disinclination to the pedantry of positive canons, and thus I would now again remark that although symmetry of form of this character endows a work of sculpture with a great charm, insomuch that its high value may be received as an axiom, yet occasionally divergence from this may be not only allowable, but even of great service in emphasising the action and expression of a statue, and that without injuring the effect of its architectural associations. Even in a niche which would seem, at first sight especially, to look for a symmetric treatment in the work occupying it, yet, premising that a general symmetric mass is obtained to occupy the general space of the niche, a hand and arm boldly coming forth straight out from the shoulder forwards, sideways, or upwards, and even cutting across the lines of the architecture, may have a fine, vigorous, and picturesque effect, and one still conducive to the general impression, although at first sight appearing to violate the compact of the arts. But these divergences and contrasts are only, I think, to be looked on as exceptions, and are in all cases to be guided by artistic taste alone, which is more subtle than rules.

Having used the tomb of Lorenzo de Medici in its whole composition, as an instance of the pyramid, we will now apply to the central seated figure which forms the apex of the composition, for an example of the vase form, drawn together towards the vase, swelling out on either side in the centre, and contracting again at the top, as is exemplified in the engraving and the small bronze copy of the Lorenzo on the table. Michelangelo being a proficient in all the four arts, was the more open to their combination. In regarding this remarkable tomb, if the spectator will in his mind's eye substitute for the figure of Lorenzo a vase form of similar proportions, and architectural festoons or some features of like character for the recumbent figures on either side, he will perceive how happy is the mere decorative combination as such, even apart from the nobleness of the figures; and indeed there are extant previous sketches by Michelangelo of trials of the arrangement of these figures, in which is evidenced that their architectural arrangement in a geometric manner was his first thought.

The "Premier Berceau," by Le Bay, of which there is a small copy on the table, that beautiful, wild, melancholy group of Eve and her Children, of which conception even the great Florentine himself might have been proud, affords another charming instance, especially in the first view, of a symmetrical vase-form.

In these two last instances, this vase outline is not tall and taper, like that presented by the Cupid and Psyche, but is wider and more luxuriant, which is in both cases gained by a seated attitude. It cannot be denied that the general contours of both these works are in a high degree just and pleasing; and it appears to me a great pity, that in this country there seems to be a disinclination to public seated statues in picturesque attitudes. I conceive this to be a misfortune to our art at the present time. And this point may be best illustrated by viewing such works in the first place in the light of geometric decorative forms. In many situations it will be acknowledged that rather broad, full, and luxuriantly-shaped vases afford richer and more satisfactory decorations than high taper ones. In the Crystal Palace-gardens, for instance, at Sydenham, I think it will be allowed that the broad vases look better than the tall ones; and I conceive that along the upper terrace, seated figures in bold attitudes, affording picturesque light and shade, but still subserving the general decorative proportions of wide vases, would have been preferable to the standing figures adopted, especially as they would have contrasted better with the numerous upright slender lines of the crystal edifice itself which forms their background. Seated attitudes were much adopted by the Greeks and Romans, and in later times by the Italians and French; and they have a most satisfactory effect on pedestals in the front of buildings, as would be the case in front of the Royal Exchange and the British Museum. If the authorities, especially concerned in the erection of our public statues, would first take an architectonic view of the subject, and consider what class of geometric decorative form would be most harmonious in a special site, before they determined for a standing or seated figure, I think that seated figures would be more frequently executed than they are now as decorations of this city.

The well-known group of the Rape of the Sabines, by John of Bologna, affords another instance of a vase-like form, round which spiral festoons of flowers may be imagined to be twisted, much as they are in those alabaster vases and flowers which we use as drawing-room decorations.

I will now pass on to busts. The ancients frequently made use of the terminal bust, and perhaps this is the most dignified way in which a work of this class can be based; but it does not so well subserve the purposes of decoration in our dwellings, and thus in modern practice has been replaced by the bust with the round pedestal. Nollekens introduced, and Chantrey continued this mode of fitting for these works, by which means, especially when placed on the frustra of columns, they become finials of a vase-like form. Chantrey was very careful in so adjusting his busts that they should preserve a general symmetric form even at the back, fitting them well for decorations and finials, as may be well, for instance, remarked in the bust of William IV. by him, in the centre of the dais at the farther end of the hall in Greenwich Hospital.

I will now proceed to offer a few remarks as to the treatment of sculpture in a tympanum. In this feature of art the general pyramidal form enforced by the space to be filled appears to be by no means the only consideration. It is unfortunate that we have no absolute record of the precise arrangement of any whole composition of Pheidias filling these spaces in the Parthenon; although in such data as remain a sort of circular form in the centre, treated in a full manner, and lessening off in waving lines towards the extreme ends, may be imagined as the general geometric treatment entertained. It has been conjectured that the figures of Niobe and her children occupied a tympanum of a temple of Apollo and Diana; but this is not certain, nor would it be safe to deduce from this series which has been thus arbitrarily arranged, the mode of the Greeks in this feature of decoration. We have the arrangement of the Æginetan tympanum, but that is of a crude and archaic character. In illustration of my views of a fine geometric treatment for the sculpture of a tympanum, I am happy to be able to allude to an English design, which, however, I only know through the medium of the engraving before you. I allude to this beautiful design by Professor Cockerell, which you see on the walls. Now I have had no conversation with him on the subject, and I hope he will take in good part the venturesome character of my reference to his charming work; but it appears to me that this design affords a most just geometric treatment of a rich circular composition in the centre of the space occupied, tangent to the base line and to the two lines of the roof. That it thus, as it were, supports the apex of the roof, and thence runs off agreeably in diversified lines towards either end. Fancifully this treatment may be likened to the appearance of a vast mask in the centre of the tympanum, the hair of which flows off on either side to either end, like that of the Medusa; or, travestied by more common ornament, is like that of a coat of arms in the centre, and foliage branching or curling off to the extreme points of the space to be occupied.

Another exceedingly picturesque example of the effective filling of a tympanum, and one very familiar, for you can hardly go up Ludgate-hill without seeing it, is on the tympanum of the west front of St. Paul's, in the relievo of the conversion of St. Paul, sculptured by Francis Bird. This appears also to have been arranged on the same principle of a circular form, opening out on all sides from the holy radiance in the centre. It is charming in effect, and one is glad to be able to say for once something favourable for London smoke, for the mode in which this has darkened certain parts of this relievo, and left others white, has subserved the scheme of the composition, and most vigorously enhanced its chiaro-scuro.

As regards the arrangement of sculpture in a tympanum, there is one mode which I think one may safely say should never be adopted, viz. that which would repeat the upright lines of the columns beneath. The masonry and structure of the pediment connects and ties together the substructure; and its sculptural decoration should surely not err from this character. It appears pointed out, therefore, that the lines of the sculpture with which it is endowed should not be loose, vertical, or disconnected; but, on the other hand, should possess an agreeably interlaced character, as one composition, spreading over and combining the space from end to end, and as it were protecting all beneath like a great bird with extended wings. And following in this track, I conceive no geometric treatment arising out of this consideration to be superior to that of a richly-devised circular supporting form in the centre, carried out towards either end in waving lines.

As regards the decoration of square spaces, the well-known metopes of the Parthenon evince a well-balanced covering of the surface, so as to obtain that amount of quality of light and shade that was just for the situations they occupied. But, further than this, any precise adoption of any common geometric line in them is not apparent to me.

In the frieze of the same building, especially in the equestrian part of it, which will be allowed to be the finest example of the kind in existence, a horizontal ribbon-like character of geometric decoration has been adopted; the mass of the relievo, consisting of the bodies of horses and the lower portions of the riders, forms the centre of this band of decoration, which is shaded off above and below with smaller forms,—above by the heads and upper portions of the riders, and below by their feet and the horses' legs. Although all these details are charmingly varied, their continuity as ornament is not broken; nor, although probably the background was made slightly blue, do I believe that anything was done in the way of colouring that was calculated to break up this continuity. The guiding line of this frieze may be said, therefore, to be horizontal, affording an arrangement of men and horses in harmony with the principal architectural lines on the cella immediately connected with it.

We will now pass to the sculptural treatment of circular forms in relievo, and regard the geometric arrangement afforded by good examples. As illustrations of these, a very few specimens are on the walls. I have not been successful in obtaining for this purpose any shields or coins, which I should have also liked to place before you. I trust, however, to your recollection to supply the absence of these. In most of the fine examples of the occupation of circular spaces, as regards shields and metal work of that description, it will occur to you that a geometric treatment is prevalent in which a bright light of vigorous design and workmanship is evident in the centre, raying off and shading away in intensity towards the edges. The shield of Francis I. said to be by Cellini, that of

Achilles by Flaxman, and of Wellington by Stodhart, also illustrate, more or less, this scheme of treatment, combined with a sort of circular movement round the outer portion, suggestive of an orrery. There appears, indeed, in art as well as in accordance with nature astronomically, an idea of movement ever connected with the occupation of circular areas of any extent. In such works as coins and gems the spaces are often too small for this feeling to arise, and, therefore, in these a single head frequently fills the centre without any lines of an undulating character around, as may be well seen in consulting the fine collection of works of this class in the British Museum.

In larger works of this form of area, no finer examples are to be found than that charming pair of relievi, equally exquisite in thought and execution,—the Morning and Night of Thorwaldsen; and, in consequence, they have become standard features of architectural decoration. The same qualities, also, as fit these charming works for panels also adapt them for gems and cameos (in which they have been worked in great numbers); that is, their decorative character, which in a large degree results from their geometric treatment. Much more might be said on this subject as regards relievi, but my space will not allow me; and I will now, before concluding, return for a short time to works in the round, directing my remarks, however, to some features of art which I have not yet touched.

The very graceful little bronze of Sappho before you, by Pradier, that Anacreon of French sculpture, is a fine example of pyramidal form attained in a single figure, fitting it, among other art-uses, for the crowning decoration for a clock; and this quality, in addition to its other excellencies, has rendered it the figure most extensively adopted for those ornamental pendules which form so large a trade in France. The copyright of this figure was purchased from the artist by one house in Paris, of which I am told it has made the fortune. And it is, doubtless, in great degree its general decorative arrangement that has made for it so great a reputation and so large a public.

In other works of far larger scale, which, from their public situation, are more constantly before the eye, and which form part of the skyline of a city, and which, moreover, are liable to be regarded from a distance, whence their general outline is more recognized than their details, a geometric and well-balanced treatment is evidently still more essential.

In Paris, on the column in the Place Vendôme, stands a statue of the first Napoleon, dressed in his well-known grey surtout, which, although it is not remarkable for its art, subserves its architectural purpose in a satisfactory manner as a finial of a somewhat Vase-like form. This cannot be said of the statues which form the finials of two of our columns in London, which are far from being geometric or well balanced in their general contours, and evidence, in an unfortunate degree, how very much the effect of a column may be injured by an inadequate or lopsided finial; and this may be allowed to suggest another and an additional reason to those generally advanced against the placing of portrait statues on the top of columns, inasmuch as portrait statues, especially in accordance with the prosaic taste of the present day, may be held not to allow, so well as emblematic statues do, of that quality of adjustment as would fit them best for finials. So that even on this score, if on the top of a column there must be a statue, it would appear preferable that it should be a Victory, or a Peace, or some other emblematic figure well fitted for a finial, and of which there need be no desire to see the features near, and that the portrait statue of the individual honoured should be below in front of the base. And I would here further take the opportunity of repeating a remark that I have often made, that it would be a very beneficial rule, that no public work of sculpture of any importance should be erected in bronze or marble in this city until the full-sized plaster model had been previously set up on the pedestal, on the intended site, in order to try its effect architecturally as well as in other respects. I am convinced that, almost without exception, some advantage would accrue to the final effect of the work from this preliminary step having been taken. In the case of either bronze or marble works it is the practice always to make full-sized models in the first instance, so that but little time or delay would arise from this plan being followed. The plaster model having thus, *in situ*, received such modifications as the seeing it in its place would suggest, it would then be removed to be translated into either marble or bronze.

We will now proceed to the character of form suitable to crown a triumphal arch, for which it will be allowed, probably that a flattened pyramid of decoration would be suitable, such as is supposed to have been obtained on the Arch of Constantine by a group in bronze by that emperor in a car drawn by four horses abreast. Other elements of subject than these are, of course, open to be chosen; but as regards mass and outline, as a sculptural finial, perhaps none could be devised better to enhance an architectural structure of this class than those of a flattened pyramid composed of features on not too large a scale. At Hyde-park-corner for some years has existed a remarkable instance of non-attention to these considerations, and, as I believe, is universally acknowledged, with anything but a satisfactory effect. In this case, however, it is well known that the group was not designed by the sculptor for the place it occupies.

I am unwilling to close these few remarks without availing myself of the support of some of the highest works of painting, as well as sculpture, in the evidence they afford of the dignified and satisfactory results of geometric arrangement in a sister art. As these, however, are not strictly within my province, I will merely run over the names of a few which readily occur, which will call up at once the recollection of their geometric treatment. By Raffaelle: the School of Athens; the Death of Ananias; the Madonna di San Sisto; and the Transfiguration. By Michelangelo: the Last Judgment, and the ceiling of the Sistine Chapel. By Titian: the Assumption of the Virgin; and various works of Fra Bartolomeo and others. And there are also on the walls a few copies of fine examples which may be regarded as illustrations of this principle.

Many other works will occur to you, evincing in like manner with these the views of the greatest professors of the sister art, that just geometric treatment goes hand in hand with the loftiest and grandest flights of fancy; and also which show the care taken by these masters towards the adjusting this in each case to the architectonic requirements of the situation.

In conclusion, as regards my own art, it will be evident to you that I have only touched on a *portion* of the subject of the geometric treatment of sculpture by reference chiefly to Classic examples and Classic architecture, and not to Gothic and other styles. Nevertheless, I fear I have already too much trespassed on the light my theme is calculated to receive from the remarks of others. Perhaps, however, I may add that, apparently there is no subject that more illustrates the connection and union of the four arts, architecture, painting, sculpture, and decoration, than that to which the above remarks apply, insomuch that it may not be inappropriate to conclude them with the well-known observation of Michelangelo, when questioned on a collateral subject, who replied, "I know but of one art."

FROM ITALY.

It is very seldom that any complete information reaches England of the progress of architecture in Italy. It is true that, for the most part, that progress may be hyperbolically described as retrograde; but, nevertheless, of late years there has been a very considerable amount of money expended in the north of Italy, in the way of repairs and restorations, which have been, for the most part, very judiciously executed.

At Florence, for example, the exterior of the Duomo has undergone a complete restoration, as well as the Campanile: the façade of Santa Croce, left unfinished for so many years, is being completed, according to the original design; and though the work proceeds but slowly (the facing not having reached more than 12 feet from the ground), there is now every expectation that the façade will shortly be finished in a manner worthy of Florence. I do not know if you have heard anything of the subscription recently set on foot for the completion of the western front of the Duomo. It is conceived in a very ingenious manner, the subscribers being divided into three classes, the highest paying, if I remember rightly, about ninepence a week, and the lowest something like a penny. The subscription will extend over three years; and, on the completion of the work, the subscribers who have interested themselves in procuring subscriptions to a certain number, as well as the collectors, will be presented with medals and certificates, in acknowledgment of their services. It is also stated in the programme that special masses will be instituted for the benefit of the souls of deceased members. This subscription is under the patronage of the Grand Duke, his prime minister, and several members of the Court; and when I left Florence it was proceeding very satisfactorily, more than the requisite number of names having been already enrolled. It is to be hoped that this praiseworthy undertaking will be carried out in a proper manner, as the west end of the cathedral has long been an eyesore, and is rendered yet more unsightly by the clumsy expedient, resorted to some time in the last century, to conceal its bareness by painted pilasters and festoons in the worst possible taste. It is to be hoped, if there are any superfluous funds, that they may be employed in completing the cornice round the base of the dome, which will render the exterior of the cathedral at Florence one of the most complete monuments in Italy. This work, if ever it is finished, must be so by the contributions of the people alone, as the Government has already contracted so heavy a debt in the improvement of the city, the construction of public latrines, the formation of new piazzas, &c. that it really has no money to spare. The people are heavily taxed already, and various means have been resorted to to pay the present debt: the tax paid by foreigners for their Carta di Soggiorno is nearly trebled; and the price of tobacco has been raised, which latter has caused much discontent.

The design of the new façade has not been decided on. It is said that there will be a competition (limited to Italians) for the work, but of this I know nothing certain. There are several designs by various architects preserved in the Library, near the Duomo, in a room with the original models of Brunelleschi for the dome of the cathedral. That which appears to have obtained the almost general suffrage of the Florentines is a design by Niccolo Matas, which is little more than a repetition of the composition of the flanks, with a lofty gable in the centre, and the wings carried up on each side to conceal the roof of the aisles. The ornament consists principally of diapers harmonizing with the ancient fabric, and a few statues in the doorways and on the summits of the piers. Another design of a similar character, but, however, not so artistic, is by Gio. Silvestri and Felice Francolini. In this design the Campanile is also shown, with the addition of a lofty spire, as originally intended by Giotto; but universal opinion has confirmed Taddeo Gaddi's judgment, that the Campanile is much better without the spire, and there is very little chance of its ever being added. The design of Giotto for the façade must necessarily be discarded, as from the preponderance of sculpture it would be almost impracticable in the present day.

The statues on the exterior of Or St. Michele having become dilapidated, have been restored, together with the niches, the lunettes of Lucca della Robbia ware, &c. One of the last that has been uncovered is the St. George, by Donatello, on the south side. There has been some talk of restoring this building to its original intention, by opening the arcades, but as yet nothing has been done in the matter. The Government are erecting a new post-office on the Lung' Arno, beyond the Uffizzi, which has long been wanted, the existing building, in the Piazza del Grand Duca, a very ancient structure, built by the Pisans taken prisoners in the wars between them and the Florentines, in the fourteenth century, having been for some time inadequate for its purpose.

A few days ago the committee appointed to adorn the empty niches of the cortile of the Uffizzi with statues of illustrious Florentines, presented a report to the Government to the effect that the work had been completed, and praying the Government to take the statues under its charge. The whole of the niches are now filled, and contain statues of various degrees of merit of Orcagna, Michelangelo, Arnolfo, Brunelleschi, Dante, Galileo, Boccaccio, Andrea del Sarto, Redi, Amerigo Vespucius, Machiavelli, Guicciardini, and many more Florentine celebrities. It somewhat lessens one's regret at the licensed gambling practised in Italy, to know that these statues have been erected from the proceeds of the lottery of the state.

There seems a great mania just now for erecting statues in Tuscany; for the Florentines, not content with the monstrous monument in the church of Santa Croce, and perhaps desirous of atoning for their ancestors' neglect of their great poet, are about to erect a statue to Dante. There was a letter the other day in the *Uomo di Pietra* (the Milanese *Punch*, which, by the way, received a "warning" from the Government for persisting in a course contrary to morality and the public good), calling upon the Veronese who sheltered the unfortunate poet in his exile, not to be behind-

hand in honouring the memory of the bard of the "Divine Comedy;" but this invitation does not seem to have been responded to.

At Padua, very extensive repairs are in progress in the exterior of the church of St. Antonio, of which you gave a view a few weeks back, from a drawing by Mr. Norman Shaw. At Venice, the churchof St. Giovanni and Paulo, is undergoing repairs, both internally and externally. Considerable works are also going on in the interior of St. Mark's. The works at the church of the Madonna dell' Orto have been suspended for some time, an accident having occurred to one of the workmen; and a suit is still pending between the Government and the contractor. The church, however, remains encumbered with scaffolding. The pictures have been removed, and are rolled up in the Academy; nobody knows exactly where. The Campanile in the Piazza St. Marco has been for some time finished; and at present the Torre dell' Orologio, at the entrance to the Merceria, is under repair. The Procurazii Nuovi, at the south-east angle of the Piazza, are also being repaired, although the repairs are of only a trivial character. Some works are yet in progress in the interior of the cortile of the Doge's Palace, which were begun some time ago. These are about all the building news at Venice, as there is very little going on in the shape of new erections, the present building, in many cases, more than sufficing for the wants of the community. There is at present very great activity in the Arsenal, as in Dante's time,—

"——Nell' arzanà dei Viniziani
Bolle l'inverno la tenace pece."

New ships are being constructed; old ones refitted by the special command of the emperor, who it is said is very desirous of re-establishing the ancient *prestige* of Venice in naval matters. The Government has, however, created a very unfavourable impression in its Venetian subjects, by the introduction of the new coinage of soldi and fiorini, which creates endless loss and trouble. In consequence of the difficulty of substituting the new coinage, the period for the recall of the old money has been extended from the 1st of November to the 31st of December, which still further complicates matters, as now we have two currencies which have scarcely any relative affinity to each other, and it is necessary continually to make calculations, which are perplexing in the extreme, as none of the existing money passes for its nominal value.

To return, however, to Architecture. Even in this quiet city (Vicenza), where there has been scarcely any building since the time of Scammozzi and Calderone, the work of restoration has been in progress. The Palazzo Chieracate, now the Museo Civico, perhaps one of the finest works of Palladio, has been very judiciously restored under the superintendence of Signor Miglioranza, and it now contains a very respectable collection of pictures, coins, medals, prints, &c. The original drawings of Palladio and Scammozzi have been framed, and hung up; and some autograph bills and receipts of the former, together with a MS. copy of his treatise on the orders, have been placed in a glass case, together with other interesting MSS. for public inspection. The whole of these improvements, the arrangement of the Museum, &c. are due to the zeal of Signor Miglioranza, who has accomplished the work in spite of many difficulties and considerable personal opposition.

This gentleman, who resided some time in England, and is a member of the Institute of Architects, has been lately exploring the remains of a Roman theatre situate in the Piazza St. Giuseppe. The existence of a theatre on this spot had been long known; and it is said that Palladio made some researches with the intention of illustrating it, but the difficulty of excavation (it being entirely covered with houses) seems to have deterred others from the attempt, until Signor Miglioranza undertook the enterprise; and to that gentleman is due the merit of having, in spite of considerable difficulties, produced a complete series of illustrations of this interesting monument. As I told you, the site is entirely covered with houses, and the theatre having been destroyed on the establishment of Christianity, there is not a single vestige left above ground, the plan only being indicated, the present houses being for the most part constructed on the ancient foundations of the theatre. To add to the difficulties of exploration, the Bacchiglione, which runs near, constantly overflows, so that the vaults of the houses are frequently under water, as they are at the present time. Signor Miglioranza, however, by dint of most careful research, has succeeded in tracing the whole of the plan of the theatre, and has made a most complete restoration, which agrees most minutely in its proportions with the rules given by Vitruvius for the construction of theatres. He also has discovered a portion of the ancient roadway at a distance of 15 feet below the present ground-level, together with statues, termini, fragments of bronze, terra-cotta, capitals of columns, and other architectural remains. The most interesting discovery, however, consists of two statues of Parian marble, of the Emperor Trajan and the Empress Sabina, the size of life. The two torsi have been calcined by fire, and the head of the emperor had been removed, and another head substituted. The original head was, however, discovered a short distance off, and is, as well as that of the empress, of the most finished execution. The head of the emperor bears a most striking resemblance to his effigy on the coins, although it is somewhat damaged, having been split in two from ear to ear: that of the empress has been better preserved, having been found in a stratum of clayey earth. Another very interesting object is an unfinished Ionic capital, upon which are traced the lines for the formation of the volute, agreeing precisely with Palladio's deduction of the rules used by the Romans. In fact, as Signor Miglioranza observed, the great value of his discovery consists in its utility, as a means of elucidating Vitruvius and other authors on the subject of the antique theatre.

There have also been discovered several very fine fragments of columns of porphyry, Egyptian and African marble, and a great number of capitals of diversity of design. All these have been measured and drawn by Signor Miglioranza, with the greatest care and precision, and his drawings form altogether about thirty folio sheets. He has the intention of publishing these, together with a Memoir on the theatre; but, of course, such a work is a dangerous undertaking, particularly in such a small city as Vicenza.

These antiquities have been deposited in the Museo Civico, and form a very interesting addition to that collection. There are, however, probably many more things undiscovered, Signor Miglioranza having only been able to lay open a portion of the ground: he has also been careful not to remove any part that formed a portion of the construction, preferring to leave it for the sake of the identification of the site, and the verification of his deductions.

I may mention, that the celebrated picture of Paulo Veronese, the Supper of Pope Gregory the Great, which was cut in pieces in 1848, by the populace, has been removed from the Museum where it formerly stood, and has been replaced in its original position in the refectory of the church of Monte Berico, by order of the emperor.

Vicenza. J. H.

SUGGESTIONS FOR A SYSTEM OF TEACHING DRAWING IN FIRST-CLASS SCHOOLS.

Now that it must be merely a matter of time before drawing is introduced as an element of education into all schools for liberal education, and believing that if we are to obtain the full value of it, we must subject the practice to the same laws as regulate other branches of knowledge, I have thought that the following suggestions may lead to some new consideration of the matter, and help to point out the true position that drawing should take when it is generally adopted into our scholastic system. In the highest schools it should be something more than the mere practice of drawing, and rather lay claim to the name of art-education. For where the time usually given to drawing is properly husbanded, it may not only be satisfactorily acquired, but be used also in the acquisition of other knowledge.

It appears to me that all true systems of teaching drawing consist in inculcating a correct knowledge of the elements of it; and that when sufficient knowledge in the rudiments has been obtained, to direct an application of the power to such subjects and in such a channel as we have learnt from experience, will produce the result we aim at. It is impossible, however, that the details of a system of teaching drawing can be explained in general terms, as to be effective a system must be varied materially in detail in teaching different kinds of drawing, and with reference to the end proposed, and bearing in mind what use is to be made of the power of drawing when it has been acquired. This also must necessarily influence the character of the teaching; for the style of drawing required, and the use it will be put to, will determine not only the *kind* of drawing taught, but the *degree* also. To give an instance,—Suppose two boys to be studying perspective: one learns to draw as an accomplishment, and to draw in perspective to enable him to make correct sketches from nature. The other learns to draw as a most important part of his education for his future profession (perhaps he is preparing for a Woolwich examination), and both the theory and practice of perspective are necessary as a qualification before he can be admitted to the examination, and his passing in them is a *sine qud non* to his success. Here would evidently be a case where two boys would learn the same *kind* of drawing, but from the very different use they intended to apply their knowledge to, it would not be necessary to teach them to the same *degree*. The first would be taught the elements of perspective, and practically shown how to apply them in drawing. Methods of obtaining certain results would be pointed out, and correctness of line would be ensured by testing the work produced by simple principles easily remembered. But the second would be required to know more than this. He must be intimately taught the connection between form and effect, reality and appearance under different circumstances. This would necessitate a knowledge of geometry and the principles of optics, for a thorough acquaintance with the laws of perspective includes the knowledge of the appearance of planes at all angles; of lines on such planes; of their real forms, which would be taught by geometry; of their appearance under given conditions, shown by perspective; and of the cause of change of appearance resulting from change in position, which can only be entirely understood by the assistance of the elements of optics. Such a deep insight into perspective would not be necessary for one who required only to sketch correctly, and the acquisition would consume too much time when the result is viewed merely as an accomplishment.

A similar example might be given with reference to the drawing of the human figure. If it were required that a boy should be taught to draw figures to put in foregrounds of sketches, the draped figures with hands and faces would give him enough to do this easily; but if a boy intended to be a surgeon, and had to be taught drawing the human figure for that purpose, it would be advisable to give him some insight into anatomy, the position of the bones and muscles, the mechanism of the joints, and the appearance of the muscles at rest and in action.

These two illustrations will show how impossible it is to state arbitrarily what would be the system adopted, as it is evident that all subjects must have their own peculiarities, and each its own modification of system. There are, however, certain fixed principles and fundamental laws with regard to tuition from which art-education is not exempt.

1. That the most compound result is produced by the use and association of simple means. To be able to produce the result we must be well acquainted with the means, and able to reduce what appears compound to its elements.

Let this be applied to the drawing of a landscape. We see before us buildings, foliage, water, foreground, distance, sky. Now all effects in nature are to be imitated by means of two different kinds of lines, viz. the straight line and the curved; by the use of these two lines, then, both separately and combined, have we to obtain our result. How are we to use them?

In *buildings*, as a rule, the outlines will be straight lines, and the surfaces seen will be planes, the edges of which form the outlines. All shading lines follow the surface and outlines of the shaded object, which in this case are straight lines, so also will be the shading lines.

Foliage presents to the eye an irregular surface and a broken and varied outline, according to the character of the tree. Depending on the latter feature will be the touch required to give a representation of it. The outline of a tree will in main feature resemble that of one of its leaves, and each touch will therefore partake of the character of the leaf, whether large-grouped and flowing as in the horse-chesnut, or short, small, and in a mass, as in the fir.

Water, if calm, will be a horizontal plane, to be shaded, therefore, by horizontal lines. If troubled, its lines will be broken into short or long curves according to the size of the waves.

Foreground and *distance* should be treated, as to touch, with regard to objects in them, whether of round or flat objects which would be shaded by means of curved and straight lines. As to the comparative depth of foreground and distance, it should be remembered that the part nearest the eye is seen most distinctly, and would therefore be marked with more decision and variety of depth than that in the distance, which, as it retreats, loses both its distinctness of outline and

light and shade, and would in consequence be represented by lighter and more undecided lines.

Sky, if unclouded, cannot be represented by lines; but depends entirely on its colour. If clouded, the same laws apply to it as regulate the drawing of very distant objects; but the shading should be of the faintest possible description, remembering that atmosphere is being dealt with, and not solid form.

Here, then, is an analysis of one kind of drawing. We have reduced it to its elements, and seen each part separately. A similar examination of other kinds of drawing, with a view to discovering their elements and essentials, enables us to lay down as decided laws with regard to them.

Landscape drawing then resolves itself into the drawing of straight lines and curves in their proper place, right form and true proportion; to do which requires the guidance and assistance of the teacher, who is able, from his superior experience, to see these features distinctly. Now comes the question. How is the power of drawing straight and curved lines to be acquired? This brings us to the following principle:—

2. To attain to proficiency in any subject, the elements of it must be first thoroughly acquired, and afterwards applied.

It was long recognised as a principle, and is now believed in by many, that only those who were endowed with taste or genius, would ever be able to draw. In other words, that certain individuals were born who alone were capable of seeing the true forms of objects, and of producing an imitation of them by means of lines. This delusion was believed in, long after it had been demonstrated that every child could be taught to write, or, in other words, could be taught to imitate by the formation of certain lines, words that stood for the names of things and actions. That is to say; human beings could learn to draw certain lines, shapes, and figures, and repeat them in any variety of combination, so long as they stood only for the *ideas* and *names* of things. But when the same human beings had to learn the drawing of exactly similar lines and shapes, and apply them in other varieties of combination, only a very few were capable of doing so, because *this* combination of lines stood for the *form* of objects. Or, to give an instance, I am able to teach my child to draw the figure 0, when it stands for the idea of nothing in arithmetic; but when it, or a similar shape, stands for the form of an egg, he is unable to draw it; and I am unable to teach him, because he has no taste! The utter absurdity of such a deduction need not be pointed out; and yet the argument about taste and no taste for drawing, resolves itself into this, viz.:—Straight lines and curves, being the common elements of writing and drawing, can be learnt by every child for the purpose of writing, but not for drawing.

It is impossible that any rational person, after careful thought upon the matter, can continue to hold so inconsistent a theory.

I, therefore, start with the principle that every person who can be taught to write, may with equal facility be taught to draw.

In commencing a course of lessons in drawing, I should take care that a careful execution of straight lines and curves should precede all other drawing. These would be repeated separately and in combination, until a straight line could be drawn with ease to any length, singly, parallel with others, and at all angles to each other. Then curves would be drawn separately, connected with each other, and simple and compound curves be practised, until the same curve could be drawn twice with some degree of accuracy. This would be followed by the symmetrical drawing of straight lines and curves on opposite sides of a central straight line. The last exercise would teach the balance of objects, and, indeed, is the most valuable practice in drawing, as it shows so powerfully the value of curves and proportion, besides inculcating a correct appreciation of symmetry. When my pupils had become so acquainted with these exercises, that they could be repeated in a fair line without much difficulty, the alphabet of the language of drawing would be acquired.

Up to this point the method of teaching would be that of class lectures, the exercises being drawn on a black board in presence and sight of all the class, so that the instruction hitherto would be general, though the peculiar mistakes of individuals would of course be pointed out to them and corrected, when the master examined each drawing, to see what progress is made, and what difficulties have been encountered.

But from this point, when all have acquired the power of drawing simple forms, instruction should become more individual. The common language of all drawing has been learnt, and the practice each pupil requires, must determine in what branch he is to be specially educated. Thus whilst one would be taught to draw landscapes, entirely, with figures as accessories, another may wish to give his whole attention to figures only, or animals and figures. Both might require to be carried on to the painting and sketching in water-colours, of their several subjects, each of which would have its gradation of exercises, commencing from the careful and diligent drawing of detail to the grouping and finishing of the most elaborate objects.

Into the true rendering of any subject by means of drawing, perspective must enter largely, so that concurrently with all kinds of drawing would be taught the elementary principles of perspective, which in some cases would be continued to the examination of the most difficult problems of the science. In cases where pupils were preparing for their appointment in the engineers or artillery of the Queen's service, or for Indian appointments, practical geometry and orthographic projection would have to be taught in preference to a more ornamental style of drawing, as these would bear more directly upon success and excellence in their future profession.

Drawing, in its practice, is an exercise of two powers,—that of the hand, and that of the memory; the hand that executes, and the memory which remembers and directs. It is, therefore, as important that the latter should be cultivated, as that the former should be exercised. This has not hitherto been sufficiently appreciated by those artists who are mere drawing masters. The result is that a certain executive power is acquired by the pupil, and when objects are presented to the eye they are copied; but the reproductive faculty stops short there. Now one of the advantages, and we may say *comforts* of a real power of drawing, is the being able to reproduce objects that are not immediately presented to the eye. To give a true representation of forms that upon a hurried inspection have made an impression on the mind,—to do this requires only a systematic development of the powers of the memory. We easily remember the text of a sermon. Why should we not as easily remember the exact shape of an east window, and be as able to reproduce the form of the latter as to quote the words of the former? The value of such a power will be understood when we consider what vague and erroneous impressions are made by mere descriptions of forms, and how easy it is to realise the character and shape of objects from even a rough sketch of them. When from careful education the hand and memory have been so exercised, that they work readily together and in concert, and thus produce accurate and detailed representations, what powerful illustrations they are to a description or a conversation, and what a weapon such a power of memory-drawing must at all times be! With these views I have always attached very much importance to drawing from memory, and have had some simple form prepared before each lesson, the proportions of which I have explained to the pupils when they have been working at other subjects, and then it is placed in such a position that it can easily be seen by the whole class. Before the next lesson each pupil is required to produce a drawing which he has made from memory, of the form given at the last. This is very difficult at first, but the difficulty felt at one time ensures a careful observation of the peculiarities of the next figure; and as the memory subjects become more and more difficult, so the observations become more keen and accurate. Then, as it is well to be familiar with more than one medium in drawing, these sketches are made in ink, which requires more care in its use than pencil drawing, besides making the draughtsman more independent of material. As to the subject of such memory sketches, it is well to make them a means of conveying an elementary knowledge of some separate subject which is not otherwise touched upon. Thus, during one half-year, by giving such exercises regularly, the whole class may be made acquainted with the type forms and details of various periods and styles of architecture. Such a practice is not so difficult as it would at first sight appear to be. My experience has proved how simple it may be made. The first lesson I gave in a similar course was to draw the four most characteristic arches of Norman, Early English, Decorated, and Perpendicular architecture. The mouldings were not drawn, only the simple line which showed the character. Thus the Norman was a semicircle; the Early English, a lancet point; the Decorated, one line balanced by its fellow, to show the ogee arch; and for the Perpendicular, a similar line, to show the four-centered arch. As a further exercise of the memory, the dates were attached to the drawings, and had to be remembered in connection with the forms given. The next lesson in memory sketching took for its subject the four types of capitals of the same styles and dates. Afterwards came the patterns of enriched mouldings, and in another lesson the characteristic foliage of the same periods. Other type forms were taken in their turn, and when some knowledge had been gained of the essential types, other and more advanced exercises took for their subjects the varieties of each style. And so we went on to sketches that combined all the type forms, as in a Norman arcade may be seen the circular column, the cushion capital, the zigzag moulding, the semicircular arch, and the base with the twelfth century claw-leaf at the four angles of the plinth.

When one subject was exhausted, another of a totally opposite character might be taken; as the elements of botany, showing by sketches the principles of the growth of plants and the individual features that distinguish one order of plants from another.

So in a similar manner might be given some notion of the mechanism of the human skeleton and muscles, though the drawing of this would be limited to the figure class; and when some knowledge of the human figure had been obtained, comparative anatomy, showing the difference between the skeleton of man and animals, and the adaptation of each to its position and requirements, would afford another series of interesting lecture lessons, and be valuable material in the cultivation of the memory.

The information to be conveyed by such means, though only the seed of knowledge, must be productive of real good, if only as directing the attention to what would not be otherwise observed; and, although the knowledge would be in itself of a very elementary kind, it might lead to deeper knowledge by inculcating habits of observation.

A system which is thus based upon the first principles of tuition derived from experience in like subjects, and is vital in its practice, having clearly-defined means of producing stated results, should, from all analogy of the past, be successful.

In conclusion, allow me to say that my opinions on this subject have been arrived at by observations of experiments made upon large classes, and of deductions from actual results. What has been tried and found true in many cases, with different material to work upon in each case, but with all the same result, may without presumption be believed in as a principle. My experience, therefore, leads me to believe that it is possible, and not only possible but necessary, that drawing should be put on precisely the same footing as other subjects, and treated as to its difficulties with as little or as much consideration. There is no reason why it should not, and every reason why it should be taught universally as an elementary subject of education. It is in practice subject to the same laws and under the same control as other parts of education, and may be learnt as easily and as generally as any other. As an educator of the eye and a developer of the powers of observation, we may expect it to have very beneficial effects upon other branches of education.

But if ever drawing is to become naturalised among us, and productive of satisfactory results, we must first get rid of that misty, ill-defined notion of its difficulties, which so prevails. We must treat it as a language, having alphabet and grammar as other languages have, to be learnt as systematically and as carefully, and therefore taught so. This consummation will *not* be brought about by the mere drawing-master of the present day, who teaches a pretty, picturesque, young-ladies' style of drawing, any more than the English language in all its dignity could be taught by an adept and professor of London slang. To obtain the full value of drawing as a part of education, requires the direction and co-operation of the regularly-trained and qualified teacher, who is familiar with the first principles and common syllables of all styles of drawing.

The artist who has become an adept in one branch of art, and has practised it to the exclusion of all others, is not only not a good teacher, but probably from the very circumstances of his life, is wholly unacquainted with the first principles of tuition. The faculties of acquiring and communicating knowledge are not necessarily associated in one person, so that the presence of one faculty is no guarantee for the possession of the other. The accomplished and distinguished artist, therefore, may not be, and usually is not, the best teacher. He may be powerful in the studio, and powerless in the class-room, without inconsistency; just as Bulwer or Thackeray might make the fortunes of their publishers, but cause a chaotic

state of things if placed at the head of Eton or Rugby.

The profession of the teacher requires natural endowments of a simple kind, but his training and method must be of the severest character. He must have the power of digesting difficult subjects, and simplifying them: of seeing the prime characteristics and essentials of every matter that comes under his hands, and by pointing these out, make them understood to the dullest and most ignorant of pupils. It behoves, therefore, those who have the selection of teachers, not to allow the exhibition of advanced executive power to be the only qualification offered by competitors for high positions as teachers of drawing; but rather to regard extent and thoroughness in the knowledge and practice of the most elementary kinds of drawing, to be the better testimonial. Special preparation as a teacher should also reckon highly, as that will usually have produced careful observation of character, and resulted in the power of adapting education in the development of peculiar minds.

Let us hope that by a rational admission of drawing into the necessities, and not the refinement of our education, and by the careful selection of teachers, the language of Form may be at last understood and spoken, and that through it our eyes may be opened to the wonders and beauties of nature and art.

Bradfield. WALTER SMITH.

FRESCOES AND STATUES IN WESTMINSTER HALL.

THE idea of an avenue of historic statues up Westminster Hall, and of a series of frescoes on the walls, also from historic subjects, being before your readers by your insertion of my two last letters on the subject, I will venture to add a few more remarks.

In my last letter, having pointed out how suitable the sides of this venerable hall are for the reception of historic pictures, as indeed the date of its first erection stretches back past most of the great scenes of our annals, I suggested how appropriate and interesting it would be that at least a portion of the subjects to be represented on those walls should be those of events that actually took place within them. Few of the visitors, I fancy, who enter that ancient apartment, which has for so many long years been the silent witness of so many scenes of energy and of change, think of the associations of the spot they tread; but fewer still would be those who would not feel thankful for being instructed through the eye, that readiest mode of learning, on those remarkable and interesting events of history, which could nowhere be so appropriately presented to the attention as in the very spot in which they occurred.

I have, however, since I wrote last, only had the opportunity of ascertaining a few of the incidents which have occurred here, that have such a degree of interest as would suggest them as national works. I will just simply enumerate them:—

1. Wallace was tried in the "great hall" at Westminster in the year 1305.
2. Strafford's trial took place in the "great hall," March 22, 1641. On this occasion, although concealed by trellis-work, the King and Queen, and Prince of Wales, heard the trial and saw what went on.
3. The trial of Charles I.
4. The trial of Sacheverel, in the reign of Anne, in the year 1710.
5. The trial of the Scotch lords, Derwentwater, Nithsdale, &c. in 1715.
6. The trial of Lords Cromarty, Kilmarnock, and Balmerino, in 1745.
7. The trial of Lovat, in 1746.
8. The trial of Warren Hastings.

It may be that these subjects are not all honourable to England, especially the first; more particularly considering what was the issue of that trial; but if illustrations of history should be as truthful in their impression as history itself, it would be a sin of omission to leave out an appropriate subject on the sole grounds of its not flattering our national vanity. Indeed, the emphasizing the event by a great picture, as a memorial of honour to Wallace, would be one of the few modes now left to us of lessening the disgraceful stain it leaves in our archives, and at any rate, it affords us the opportunity of expressing our present sense of it.

The above subjects may appear to be somewhat too similar, being all trials. This, however, would be mitigated, not only by the wide diversity of their periods, but by being confided to different hands. I conceive, however, that a due search in our chronicles would afford various subjects as having taken place in Westminster Hall which are not trials. Many of these would be casual incidents. But also some ceremonials might be justly introduced: as, for instance, the first swearing in of a lord mayor there; which is an important ceremonial, although we are far too inclined to laugh at things of that nature here, which we should regard with historic respect if taking place in another country.

I am quite sure on one point—that you have among your readers those who are far better acquainted with history than myself, and it is possible that you may thus receive some additions to the little list I have sent, *of subjects which have taken place in Westminster Hall, which would be appropriate to be there executed in fresco.* The more of these subjects that could be found that would be worthy of being thus recorded, no doubt the better, as the more special would be the character that they would lend to the series; nevertheless, of course it would not be advisable to introduce any trifling subject, merely because this was the spot on which it occurred. On the contrary, only dignified and important subjects should be introduced, giving the preference to those which had been enacted within the hall itself, and next to those which had occurred at Westminster, or in the City of London.

The building of the hall itself could, perhaps, hardly be left out from this series, and any subjects of a judicial character would appropriately find their place within this apartment; and none would be more just as an introduction to the other trials, than the "First Trial by Jury," by Mr. Cope, of which I have spoken before, and which I am sure the lovers of art, who so much admired it as a cartoon, would highly desire to see in fresco: and where could a more suitable situation be found for it than in the immediate neighbourhood of the Law Courts, that have been so long held within this building?

With respect to the avenue of statues up the hall, the same view as to subjects might well, I should think, be held, viz. to give the preference to such of our worthies as have been more especially connected with the occurrences which have taken place in the hall and in Westminster, but not by any means to the exclusion of those who have not that specialty. Among the contributions to the original sculpture competition in Westminster Hall, in 1845, there was a very characteristic and pleasing figure of Chaucer, by Mr. Marshall, R.A. Why is the public not to have the pleasure of seeing this in marble? I believe they liked it very much in the full-sized model, and it might be appropriate as forming one of the avenue. EPSILON.

HOW ARE WE TO ADVANCE?

MR. H. B. GARLING, in his paper on the Album of the Thirteenth Century—Wilars', of whom our readers have already heard something, made the following observations, which deserve consideration:—

Assuming him to be the type of the artists of that age, let us note particularly the wide and unrestricted field over which they spread their studies, how thoroughly eclectic they were in their habits of observation, how they swept off everything that came in their way, sacred and profane, that offered new ideas and new images; with what honesty they set themselves the task of meeting the requirements of their age; how candidly they admitted its conditions, how thoroughly they expressed its spirit; and this liberal, and catholic, and unprejudiced view brought its natural reward, in inexhaustible fertility of invention, in unerring propriety of application, and in matchless vigour and originality of expression. For we must remember, where genius, essentially the creative power in man, exists in the greatest degree, we shall find, if we analyse its operations, that it does not create new forms or new images, but simply creates new combinations of images and forms already existing; and that by natural consequence, its powers are disciplined, nourished, and perfected by abundant observation, and its stores increased only by the accumulation of matter, of raw material, so to say, which it renders back again refined, wrought up, transformed, and combined in endless variety, by those processes which genius alone can effect. Can we then, by study, that accumulates matter, by education that disciplines thought, hope to rival the glories of the great epochs of art? I mean of those periods when it had such truth and grandeur, when it aimed so high, and so nearly attained its mark, that it became the standard, the starting-point for everything that followed. Most assuredly not; for the true causes of this excellence lay infinitely deeper than any we can touch by the most skilful training. If we examine the history of the time, we shall find that all these great awakenings, so to call them, followed hard upon some mighty political convulsion, some movement of a character so deep that it stirred up from the very bottom that class of feelings and emotions which, when the tumult has subsided, find their natural expression in poetry, and in the most truly poetical phases of art. Convulsions so absorbing in their influence that they forced everything into one channel, so comprehensive that they left no space for rival influences, so powerful that they communicated impulses of which the duration may be reckoned by centuries, and which, like undulations from a common centre, became feebler as they widened in circuit, till crossed by counter influences they exhibited only a surface of troubled water; as in our own day, heaving, indeed, tumultuously, but moving in no definite direction, attesting only the mighty force of the first impulse, and the elastic and impressible element through which it was propagated. Such convulsions were the Persian invasion in classic, and the Crusades in later times; for though the direction of these two great events was different, the feelings and emotions they roused were identically the same, and their effects precisely parallel. The results in each instance were precisely the same. In the Greek, of more ethereal temperament, they were more rapid, more brilliant, and more dazzling. In the Goth, of sterner mould, they were more solid and more enduring. The one gained at a bound the height, which the other reached by slower steps, but sure; the influence of the one expired, for though lofty it was essentially human; the other survives, through the Divine element with which it was interwoven. I say, then, a combination of influences only, such as occur but twice or thrice in the history of the world, at particular stages of advancement in knowledge and civilization, can alone produce what we desire so earnestly to see in this our own day. Shall we, then, do nothing? Certainly not. If we cannot do all we could wish, we can easily achieve some improvement, and I would make a few suggestions in furtherance of this desirable object.

First,—That enlarged study will remove narrow prejudices.

Secondly,—That it is by thorough digestion, and not by the accumulation of matter, that we learn to invent.

Thirdly,—That to copy great works is not to imitate great masters.

Fourthly,—That it is only in the nineteenth century that fine art is considered one thing, and the vernacular, so perhaps truly named, another. In the thirteenth, the vernacular expressed the popular want, the necessity of the case, the conditions of design; while fine art showed how the artist could refine what was coarse and vulgar, ennoble what was mean, and spiritualize what was gross and material; his proper and highest vocation.

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The great hall is kept clear of the boundary fence wall at the back, where a retiring-room and lavatories are placed, lighted by means of sky-lights.

Upon entering, the offices are ranged right and left; the clerks' offices, with the surveyor's and vestry-clerk's private offices, adjoining. Communicating with the latter is a fireproof muniment-room, balanced on the opposite side by a room for the messenger, commanding the corridor, and midway between the offices and committee-room. This committee-room on the ground-floor, we may observe *en passant*, is larger than the principal one in two of the chosen six designs. Staircase to upper floor, 11 feet wide: stairs to basement, waiting and retiring rooms, lavatories, &c. complete the ground-floor.

On the upper floor the large committee-room occupies the whole of the main front, and is 46 feet 6 inches by 22 feet 6 inches. Although one design introduced a room of such an enormous size as 1,380 superficial feet, our plan provides a room much larger than all the remaining five of the selected designs, containing as it does 1,046 superficial feet. The relative proportions of this room in the different designs is fully shown in our letter, which appeared in p. 804 of the *Builder*. The object of this room was not generally known till the drawings were deposited.

A large waiting-room is also placed on the upper floor, which could be used as a third committee-room, should occasion require. There are a retiring-room and lavatories leading from the principal committee-room, accountant's offices, and medical service rooms. The corridor opens to the upper part of vestibule, with an archway at the end, and an iron ornamental railing.

The basement plan provides living accommodation for the hall-keeper, a strong room (fireproof), lavatories, &c. for clerks. The whole of the basement is excavated to give ample space for stores; nevertheless, by keeping the level of the ground-floor high above the ground-line, the amount of excavation would be very trifling.

The great hall has an open timber roof, with two regulating turrets for ventilation; under-draughts being obtained above the heads of the people in the five double windows which light the hall on the south side, and a circular window in each of the gables. Preparation is made for heating the hall by hot water or air. Coloured bricks and stone are introduced in the interior for the windows and round the doors. There is a gallery at one end. The large committee-room in front is also made of importance, by having an open timber roof, thus obtaining increase of space, and saving expense by dispensing with the use of lath and plaster, cornices and mouldings, and castings to enrich the ceiling.

The whole of the stairs, landings, and corridors are fireproof. The hall itself is so far unconnected with the offices as to secure almost to a certainty its safety were they to take fire, or *vice versâ*. The whole of the offices and committee-rooms are warmed by means of open fireplaces; and a perfect system of ventilation is provided, all through the building, of the most inexpensive construction.

The windows to the main building would be provided with metal casements; those at the side, wooden hanging sashes of the usual construction. The lower corridor and vestibule would be paved with Minton or Mawe's tiles.

The character of the design, on which the vestry desired to put no restrictions to fetter the architects' fancy, is eclectic Gothic, founded on the Italian Gothic style, adapted to the present age. An admixture of stone and coloured bricks is introduced: the main fines would be of Suffolk bricks, the roofs slated, and with ornamental iron ridge: iron eaves gutters, with rain-water pipe inserted in chamfered recesses, connected with the gutter by iron heads, are made to assist the ornamentation.

The use of compo, or of other material involving the necessity for constant expenditure, is studiously excluded, a desideratum strongly urged by the vestry *when choosing from the six previously selected*.

Over the front entrance-porch, which is supported on four stone shafts, with enriched caps, is the clock, easy of access from the large committee-room. Above is an open turret, with a high metal covering, to give importance to the front. The two dormer gables, connected from the ground with stone pilasters, are corbelled out over enriched caps, to give boldness: there is plate tracery to the windows, and these have large sheets of plate-glass in the front and side of the front portion, and sheet-glass to the side windows of offices.

We probably stood alone in not stating that our design could be carried out for the sum stipulated, but we might have done so with as much truth as the authors of the greater number. What we said was,—

"It is believed that the design might be carried out for the sum named in the statement of requirements. If, however, it should be found, when detailed estimates are obtained, that the cost would exceed this sum, alteration could be made to meet the excess without lessening the conveniences of the arrangement. Further, although the architects of the design *are anxious that the Vestry Hall of Chelsea should, externally, be distinguishable from an ordinary dwelling, and possess architectural features of its own, it would be easy to adapt the plan to a less ornate elevation, if that were deemed desirable.* They trust, however, that the design in its integrity, while providing ample accommodation, and marking itself as a public building, will be considered, as they themselves think it, 'Nothing too Much.'"

H. G.
S. G.

References to Ground Plan.

A. Entrance porch.
B. Vestry clerk's clerks, 22 ft. 6 in. by 17 ft. 6 in.
C. Vestry clerk.
D. Surveyor's clerks, 22 ft. 6 in. by 17 ft. 6 in.
E. Surveyor.
F. Muniment-room, fire-proof.
G. Messenger's room.
H. Staircase.
I. Committee-room.
K. Waiting-room.
LLL. Water-closets.
M. Vestibule.
N. Officers' lavatory, &c.
O. Stairs to gallery for the hall.
P. Retiring-room.
Q. Lavatory.
R. Lobby.
S. Urinals.

* The following, from another competitor, is one of several received in addition to those already printed:—

Competition Designs for Chelsea Vestry Hall.—Sir: Pressure of country business has been the cause of my not addressing you ere this on the above subject. On my arrival in town I looked over the *Builder* and other papers, and was truly surprised to learn which six designs had been chosen by a committee. I should very much like to see a report of that committee, and their reasons for selecting these particular six, which, to my mind, include some in every way inferior to most of the fifteen designs that were on view. I have just referred to my pocket-book to see what my opinion was. It runs (I am always willing to give credit to my brother architects' works, if they are superior to my own):—

No. 12, the first prize.
No. 3, the second.
Nos. 15 and 14, next.

The way in which a certain vestryman worked for one of the designs is well known.

* * * *

The whole affair, from beginning to end, seems to have been a matter of favour; but really, when we come to consider how committees have acted, I suppose I must not feel surprised.

I consider that my design ranked about fifth.

I have been informed that my design was thrown out because the elevation was coloured, which was not according to the written instructions. Now I should like to ask any unprejudiced architect, builder, or in fact any practical man, if *any* of the designs were according to the instructions? Was it possible to give the parish all the accommodation required for such a ridiculously low sum?

"VERITAS VINCIT."

state of things if placed at the head of Eton or Rugby.

The profession of the teacher requires natural endowments of a simple kind, but his training and method must be of the severest character. He must have the power of digesting difficult subjects, and simplifying them: of seeing the prime characteristics and essentials of every matter that comes under his hands, and by pointing these out, make them understood to the dullest and most ignorant of pupils. It behoves, therefore, those who have the selection of teachers, not to allow the exhibition of advanced executive power to be the only qualification offered by competitors for high positions as teachers of drawing; but rather to regard extent and thoroughness in the knowledge and practice of the most elementary kinds of drawing, to be the better testimonial. Special preparation as a teacher should also reckon highly, as that will usually have produced careful observation of character, and resulted in the power of adapting education in the development of peculiar minds.

Let us hope that by a rational admission of drawing into the necessities, and not the refinement of our education, and by the careful selection of teachers, the language of Form may be at last understood and spoken, and that through it our eyes may be opened to the wonders and beauties of nature and art.

Bradfield. WALTER SMITH.

FRESCOES AND STATUES IN WESTMINSTER HALL.

THE idea of an avenue of historic statues up Westminster Hall, and of a series of frescoes on the walls, also from historic subjects, being before your readers by your insertion of my two last letters on the subject, I will venture to add a few more remarks.

In my last letter, having pointed out how suitable the sides of this venerable hall are for the reception of historic pictures, as indeed the date of its first erection stretches back past most of the great scenes of our annals, I suggested how appropriate and interesting it would be that at least a portion of the subjects to be represented on these walls should be those of events that actually took place within them. Few of the visitors, I fancy, who enter that ancient apartment, which has for so many long years been the silent witness of so many scenes of energy and of change, think of the associations of the spot they tread; but fewer still would be those who would not feel thankful for being instructed through the eye, that readiest mode of learning, on those remarkable and interesting events of history, which could nowhere be so appropriately presented to the attention as in the very spot in which they occurred.

I have, however, since I wrote last, only had the opportunity of ascertaining a few of the incidents which have occurred here, that have such a degree of interest as would suggest them as national works. I will just simply enumerate them:—

1. Wallace was tried in the "great hall" at Westminster in the year 1305.
2. Strafford's trial took place in the "great hall," March 22, 1641. On this occasion, although concealed by trellis-work, the King and Queen, and Prince of Wales, heard the trial and saw what went on.
3. The trial of Charles I.
4. The trial of Sacheverel, in the reign of Anne, in the year 1710.
5. The trial of the Scotch lords, Derwentwater, Nithsdale, &c. in 1715.
6. The trial of Lords Cromarty, Kilmarnock, and Balmerino, in 1745.
7. The trial of Lovat, in 1746.
8. The trial of Warren Hastings.

It may be that these subjects are not all honourable to England, especially the first; more particularly considering what was the issue of that trial; but if illustrations of history should be as truthful in their impression as history itself, it would be a sin of omission to leave out an appropriate subject on the sole grounds of its not flattering our national vanity. Indeed, the emphasizing the event by a great picture, as a memorial of honour to Wallace, would be one of the few modes now left to us of lessening the disgraceful stain it leaves in our archives, and at any rate, it affords us the opportunity of expressing our present sense of it.

The above subjects may appear to be somewhat too similar, being all trials. This, however, would be mitigated, not only by the wide diversity of their periods, but by being confided to different hands. I conceive, however, that a due search in our chronicles would afford various subjects as having taken place in Westminster Hall which are not trials. Many of these would be casual incidents. But also some ceremonials might be justly introduced: as, for instance, the first swearing in of a lord mayor there; which is an important ceremonial, although we are far too inclined to laugh at things of that nature here, which we should regard with historic respect if taking place in another country.

I am quite sure on one point—that you have among your readers those who are far better acquainted with history than myself, and it is possible that you may thus receive some additions to the little list I have sent, *of subjects which have taken place in Westminster Hall, which would be appropriate to be there executed in fresco.* The more of these subjects that could be found that would be worthy of being thus recorded, no doubt the better, as the more special would be the character that they would lend to the series; nevertheless, of course it would not be advisable to introduce any trifling subject, merely because this was the spot on which it occurred. On the contrary, only dignified and important subjects should be introduced, giving the preference to those which had been enacted within the hall itself, and next to those which had occurred at Westminster, or in the City of London.

The building of the hall itself could, perhaps, hardly be left out from this series, and any subjects of a judicial character would appropriately find their place within this apartment; and none would be more just as an introduction to the other trials, than the "First Trial by Jury," by Mr. Cope, of which I have spoken before, and which I am sure the lovers of art, who so much admired it as a cartoon, would highly desire to see in fresco: and where could a more suitable situation be found for it than in the immediate neighbourhood of the Law Courts, that have been so long held within this building?

With respect to the avenue of statues up the hall, the same view as to subjects might well, I should think, be held, viz. to give the preference to such of our worthies as have been more especially connected with the occurrences which have taken place in the hall and in Westminster, but not by any means to the exclusion of those who have not that specialty. Among the contributions to the original sculpture competition in Westminster Hall, in 1845, there was a very characteristic and pleasing figure of Chaucer, by Mr. Marshall, R.A. Why is the public not to have the pleasure of seeing this in marble? I believe they liked it very much in the full-sized model, and it might be appropriate as forming one of the avenue. EPSILON.

HOW ARE WE TO ADVANCE?

MR. H. B. GARLING, in his paper on the Album of the Thirteenth Century—Wilars', of whom our readers have already heard something, made the following observations, which deserve consideration:—

Assuming him to be the type of the artists of that age, let us note particularly the wide and unrestricted field over which they spread their studies, how thoroughly eclectic they were in their habits of observation, how they swept off everything that came in their way, sacred and profane, that offered new ideas and new images; with what honesty they set themselves the task of meeting the requirements of their age; how candidly they admitted its conditions, how thoroughly they expressed its spirit; and this liberal, and catholic, and unprejudiced view brought its natural reward, in inexhaustible fertility of invention, in unerring propriety of application, and in matchless vigour and originality of expression. For we must remember, where genius, essentially the creative power in man, exists in the greatest degree, we shall find, if we analyse its operations, that it does not create new forms or new images, but simply creates new combinations of images and forms already existing; and that by natural consequence, its powers are disciplined, nourished, and perfected by abundant observation, and its stores increased only by the accumulation of matter, of raw material, so to say, which it renders back again refined, wrought up, transformed, and combined in endless variety, by those processes which genius alone can effect. Can we then, by study, that accumulates matter, by education that disciplines thought, hope to rival the glories of the great epochs of art? I mean of those periods when it had such truth and grandeur, when it aimed so high, and so nearly attained its mark, that it became the standard, the starting-point for everything that followed. Most assuredly not; for the true causes of this excellence lay infinitely deeper than any we can touch by the most skilful training. If we examine the history of the time, we shall find that all these great awakenings, so to call them, followed hard upon some mighty political convulsion, some movement of a character so deep that it stirred up from the very bottom that class of feelings and emotions which, when the tumult has subsided, find their natural expression in poetry, and in the most truly poetical phases of art. Convulsions so absorbing in their influence that they forced everything into one channel, so comprehensive that they left no space for rival influences, so powerful that they communicated impulses of which the duration may be reckoned by centuries, and which, like undulations from a common centre, became feebler as they widened in circuit, till crossed by counter influences they exhibited only a surface of troubled water; as in our own day, heaving, indeed, tumultuously, but moving in no definite direction, attesting only the mighty force of the first impulse, and the elastic and impressible element through which it was propagated. Such convulsions were the Persian invasion in classic, and the Crusades in later times; for though the direction of these two great events was different, the feelings and emotions they roused were identically the same, and their effects precisely parallel. The results in each instance were precisely the same. In the Greek, of more ethereal temperament, they were more rapid, more brilliant, and more dazzling. In the Goth, of sterner mould, they were more solid and more enduring. The one gained at a bound the height, which the other reached by slower steps, but sure; the influence of the one expired, for though lofty it was essentially human; the other survives, through the Divine element with which it was interwoven. I say, then, a combination of influences only, such as occur but twice or thrice in the history of the world, at particular stages of advancement in knowledge and civilization, can alone produce what we desire so earnestly to see in this our own day. Shall we, then, do nothing? Certainly not. If we cannot do all we could wish, we can easily achieve some improvement, and I would make a few suggestions in furtherance of this desirable object.

First,—That enlarged study will remove narrow prejudices.

Secondly,—That it is by thorough digestion, and not by the accumulation of matter, that we learn to invent.

Thirdly,—That to copy great works is not to imitate great masters.

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A large waiting-room is also placed on the upper floor, which could be used as a third committee-room, should occasion require. There are a retiring-room and lavatories leading from the principal committee-room, accountant's offices, and medical service rooms. The corridor opens to the upper part of vestibule, with an archway at the end, and an iron ornamental railing.

The basement plan provides living accommodation for the hall-keeper, a strong room (fireproof), lavatories, &c. for clerks. The whole of the basement is excavated to give ample space for stores; nevertheless, by keeping the level of the ground-floor high above the ground-line, the amount of excavation would be very trifling.

The great hall has an open timber roof, with two regulating turrets for ventilation; under-draughts being obtained above the heads of the people in the five double windows which light the hall on the south side, and a circular window in each of the gables. Preparation is made for heating the hall by hot water or air. Coloured bricks and stone are introduced in the interior for the windows and round the doors. There is a gallery at one end. The large committee-room in front is also made of importance, by having an open timber roof, thus obtaining increase of space, and saving expense by dispensing with the use of lath and plaster, cornices and mouldings, and castings to enrich the ceiling.

The whole of the stairs, landings, and corridors are fireproof. The hall itself is so far unconnected with the offices as to secure almost to a certainty its safety were they to take fire, or *vice versâ*. The whole of the offices and committee-rooms are warmed by means of open fireplaces; and a perfect system of ventilation is provided, all through the building, of the most inexpensive construction.

The windows to the main building would be provided with metal casements; those at the side, wooden hanging sashes of the usual construction. The lower corridor and vestibule would be paved with Minton or Mawe's tiles.

The character of the design, on which the vestry desired to put no restrictions to fetter the architects' fancy, is eclectic Gothic, founded on the Italian Gothic style, adapted to the present age. An admixture of stone and coloured bricks is introduced: the main face would be of Suffolk bricks, the roofs slated, and with ornamental iron ridge: iron eaves gutters, with rain-water pipe inserted in chamfered recesses, connected with the gutter by iron heads, are made to assist the ornamentation.

The use of compo, or of other material involving the necessity for constant expenditure, is studiously excluded, a desideratum strongly urged by the vestry *when choosing from the six previously selected*.

Over the front entrance-porch, which is supported on four stone shafts, with enriched caps, is the clock, easy of access from the large committee-room. Above is an open turret, with a high metal covering, to give importance to the front. The two dormer gables, connected from the ground with stone pilasters, are corbelled out over enriched caps, to give boldness: there is plate tracery to the windows, and these have large sheets of plate-glass in the front and side of the front portion, and sheet-glass to the side windows of offices.

We probably stood alone in not stating that our design could be carried out for the sum stipulated, but we might have done so with as much truth as the authors of the greater number. What we said was,—

"It is believed that the design might be carried out for the sum named in the statement of requirements. If, however, it should be found, when detailed estimates are obtained, that the cost would exceed this sum, alteration could be made to meet the excess without lessening the conveniences of the arrangement. Further, although the architects of the design *are anxious that the Vestry Hall of Chelsea should, externally, be distinguishable from an ordinary dwelling, and possess architectural features of its own, it would be easy to adapt the plan to a less ornate elevation, if that were deemed desirable.* They trust, however, that the design in its integrity, while providing ample accommodation, and marking itself as a public building, will be considered, as they themselves think it, 'Nothing too Much.'"

H. G.
S. G.

References to Ground Plan.

A. Entrance porch.
B. Vestry clerk's clerks, 22 ft. 6 in. by 17 ft. 6 in.
C. Vestry clerk.
D. Surveyor's clerks, 22 ft. 6 in. by 17 ft. 6 in.
E. Surveyor.
F. Muniment-room, fire-proof.
G. Messenger's room.
H. Staircase.
I. Committee-room.
K. Waiting-room.
LLL. Water-closets.
M. Vestibule.
N. Officers' lavatory, &c.
O. Stairs to gallery for the hall.
P. Retiring-room.
Q. Lavatory.
R. Lobby.
S. Urinals.

* The following, from another competitor, is one of several received in addition to those already printed:—

Competition Designs for Chelsea Vestry Hall.—Sir: Pressure of country business has been the cause of my not addressing you ere this on the above subject. On my arrival in town I looked over the *Builder* and other papers, and was truly surprised to learn which six designs had been chosen by a committee. I should very much like to see a report of that committee, and their reasons for selecting these particular six, which, to my mind, include some in every way inferior to most of the fifteen designs that were on view. I have just referred to my pocket-book to see what my opinion was. It runs (I am always willing to give credit to my brother architects' works, if they are superior to my own):—

No. 12, the first prize.
No. 3, the second.
Nos. 15 and 14, next.

The way in which a certain vestryman worked for one of the designs is well known.

* * *

The whole affair, from beginning to end, seems to have been a matter of favour; but really, when we come to consider how committees have acted, I suppose I must not feel surprised.

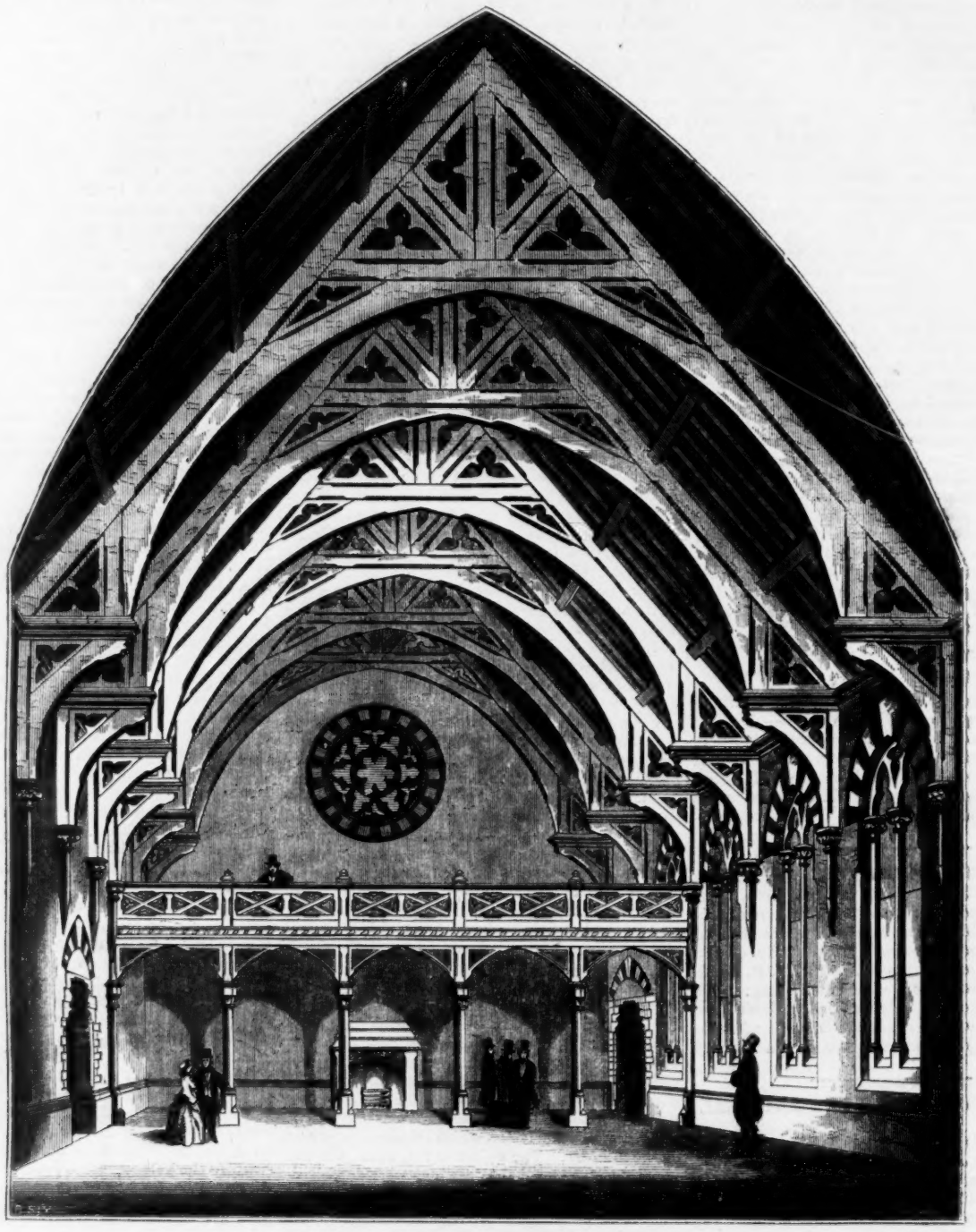
I consider that my design ranked about fifth.

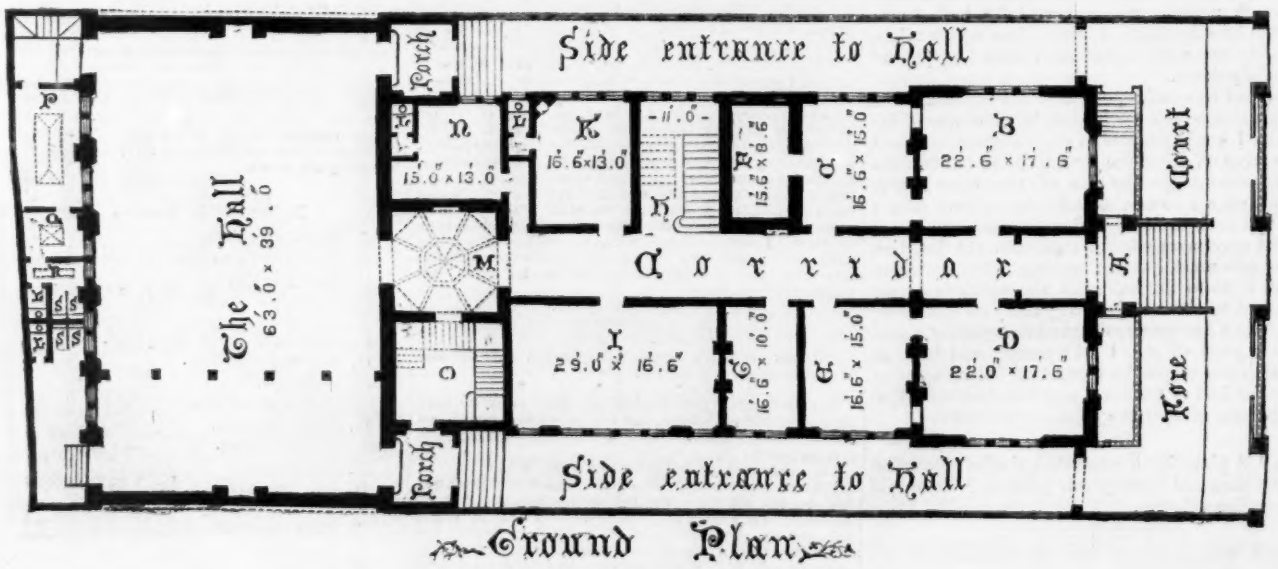
I have been informed that my design was thrown out because the elevation was coloured, which was not according to the written instructions. Now I should like to ask any unprejudiced architect, builder, or in fact any practical man, if *any* of the designs were according to the instructions? Was it possible to give the parish all the accommodation required for such a ridiculously low sum?

"VERITAS VINCIT."

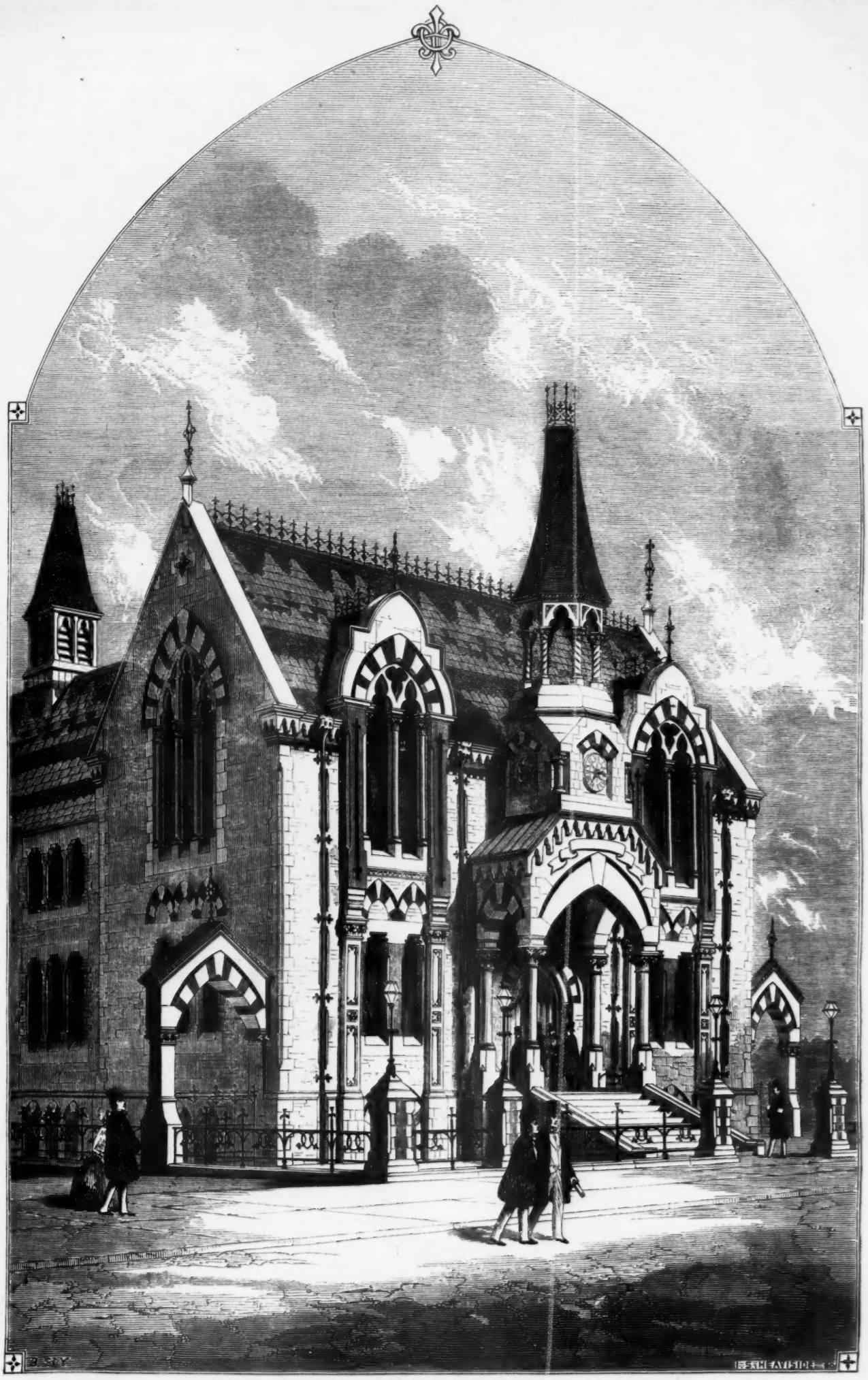
A DESIGN FOR THE PROPOSED VESTRY-HALL FOR CHELSEA.

View in the Hall, looking East.





Ground Plan



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Mr. Henry Godwin and Mr. Sidney Godwin, Architects.

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THE STAGE.

Haymarket Theatre.—Sir Dormer de Brazenby's grand idea, in the new comedy *The Tide of Time*, of building cities in a circular form, reminded us of some plans for houses sent us last year by the late Robert Owen, which, according to his account, had been produced by an individual acting "under spiritual guidance." All the rooms were circular, and, being arranged around a central circular apartment, the plan suggested a large egg-stand. Sir Dormer, however, when he would substitute for entangled courts and alleys continuous curves offering no obstacle to the circulation of the free air, does not deserve to be laughed at, though as Mr. Compton puts it, it cannot well be avoided. Fault has been found with the piece, on the ground that it is a moral essay rather than a play; but it is certainly very amusing and interesting, and at the same time free from reproach. Mr. Buckstone has a morsel of eccentricity which he makes very effective; and Miss Reynolds and Mr. Howe contribute to the success. The scenes, especially the first and third, the grounds around *Mr. Pendarvis's* grounds, are very well painted.

AMATEUR MUSICAL SOCIETY.

OUR observations last week upon this society have been justified by the result; and a triumphant success at their second concert will doubtless preserve for them the *prestige* which, in fact, they have never lost, though recent criticism bid fair to shake it.

A good programme, comprising Beethoven's symphony in C, three of the best overtures of Mozart, Rosini, and Auber, a capital march by Val Morris, and some charming part-songs by Leslie, Smart, and Macfarren, kept the audience on the *qui vive*, and the orchestra on its mettle; and never did the latter execute its work with greater brilliancy and effect. The fact is, the "amateurs" play as well as ever they did, and perhaps better, but, like their *professional* brethren, are subject to those gradations of excellence and shortcomings of perfection, which by all accounts—that of the *Times* of Tuesday last, for example,—attach to the latter as well as to the former.

We need hardly say that, in recommending the Society to adhere to the great symphonic writers, we would advocate more than an equal share of that author whose works, like Shakspeare's, are "not of a day, but for all time;" the undying freshness and majestic simplicity of whose melodies stamp him the greatest musical genius the world ever produced,—Mozart.

One mistake only in Monday's programme we have to record, and that was Gounod's *Médita-*

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My lords consider that this end will be best attained by extending to schools of art the principle of grants for buildings, which has proved of such great importance in promoting primary education. They therefore propose to apply to Parliament for an annual grant, to be expended in encouraging local efforts to provide suitable schools of art where the instruction may be carried on efficiently, and public taste cultivated. Such buildings should be free from rent, and the fees for instruction be made applicable to the payment of the masters."

THE STAGE.

Haymarket Theatre.—Sir Dormer de Brazenby's grand idea, in the new comedy *The Tide of Time*, of building cities in a circular form, reminded us of some plans for houses sent us last year by the late Robert Owen, which, according to his account, had been produced by an individual acting "under spiritual guidance." All the rooms were circular, and, being arranged around a central circular apartment, the plan suggested a large egg-stand. Sir Dormer, however, when he would substitute for entangled courts and alleys continuous curves offering no obstacle to the circulation of the free air, does not deserve to be laughed at, though as Mr. Compton puts it, it cannot well be avoided. Fault has been found with the piece, on the ground that it is a moral essay rather than a play; but it is certainly very amusing and interesting, and at the same time free from reproach. Mr. Buckstone has a morsel of eccentricity which he makes very effective; and Miss Reynolds and Mr. Howe contribute to the success. The scenes, especially the first and third, the grounds around *Mr. Pendarvis's* grounds, are very well painted.

AMATEUR MUSICAL SOCIETY.

OUR observations last week upon this society have been justified by the result; and a triumphant success at their second concert will doubtless preserve for them the *prestige* which, in fact, they have never lost, though recent criticism bid fair to shake it.

A good programme, comprising Beethoven's symphony in C, three of the best overtures of Mozart, Rosini, and Auber, a capital march by Val Morris, and some charming part-songs by Leslie, Smart, and Macfarren, kept the audience on the *qui vive*, and the orchestra on its mettle; and never did the latter execute its work with greater brilliancy and effect. The fact is, the "amateurs" play as well as ever they did, and perhaps better, but, like their *professional* brethren, are subject to those gradations of excellence and shortcomings of perfection, which by all accounts—that of the *Times* of Tuesday last, for example,—attach to the latter as well as to the former.

We need hardly say that, in recommending the Society to adhere to the great symphonic writers, we would advocate more than an equal share of that author whose works, like Shakspeare's, are "not of a day, but for all time;" the undying freshness and majestic simplicity of whose melodies stamp him the greatest musical genius the world ever produced,—Mozart.

One mistake only in Monday's programme we have to record, and that was Gounod's *Médita-*

tion sur une Prélude de Bach, thoroughly well played, but trifling and ineffective, and not worth the preliminary fuss of changing pianos, tuning, and arranging. In fact, we could not help indulging in another French "meditation upon the prelude" during the performance, and that was,—"*Le jeu ne vaut pas la chandelle.*" Still, as we have already said, the concert was a complete success, and gave pleasure to all present.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE COST OF A STATUE.

The ordinary meeting of the members of the Institute was held on Monday evening last, at 16, Grosvenor-street.

Mr. J. J. Scoles, V.P. occupied the chair. The minutes of the last meeting were read and confirmed. Donations having been announced, Mr. Horace Jones and Mr. Edward J. Payne were balloted for and elected fellows of the institute.

Mr. C. C. Nelson (honorary secretary) said that he had received a paper from Melbourne, containing a marked paragraph referring to the proceedings of the Institute of Architects at Adelaide. The body acknowledged, with thanks, the receipt of the transactions of the Royal Institute, and the president made a statement of great interest with reference to the building of an architectural museum. From that statement it appeared that the colonial government had voted 2,000*l.* in addition to a donation of a quarter of an acre of land, for the purpose of erecting a museum. This was an example which might be followed with advantage in the mother country. The Royal Institute had endeavoured to obtain assistance from headquarters for a similar object, but without success; and at length they were indebted to a limited liability company for a decent place to meet in at their own expense.

Mr. Digby Wyatt called attention to a number of beautiful drawings executed by Senor Eugenio Agneni, and adapted to interior decorations. Some of them were similar to those by which her Majesty's private box at Covent Garden is embellished, and are applicable to mirrors, panels, &c. We have already spoken of M. Agneni's process.

Mr. John Bell then read a paper on the geometric treatment of sculpture, which we give in full. At the conclusion,

Mr. Parris observed that he was sure they must all agree with Mr. Bell in his remarks with reference to the connection of sculpture with architecture. They were all aware of the manner in which architecture had been treated in the Royal Academy, where everything was made to give place to painting. The Royal Institute of British Artists had now taken up the architects, and had become a sort of rival to the Academy; but still the sculptors had no local habitation. He hoped, however, that a good understanding would henceforth be established between architects and sculptors, and that for the future those kindred arts would be more combined. With regard to the subject under discussion on the previous evening, he feared he had not made himself sufficiently clear, as he found that many persons had mistaken him. What he meant to have said, with reference to the number of bones in the human body, was, not that there were 32 bones in the hand, but that there were 32 bones in each subdivision of the body: thus, 32 bones in the arm (including the hand), 32 in each leg (including the foot), 32 in the vertebræ, 32 teeth, &c. He did not wish to lay this down as a dogma in connection with the proportions of classic architecture; but it was interesting to observe how often the number 32 was repeated in ancient classic building. By dividing the skeleton into seven equal parts, 224 bones were found: the length of the Parthenon was 228 feet, or very slightly in excess. The number of bones in the two arms was 64—exactly the height of the Parthenon. The Athenians, it would appear, made their subdivisions in twos, fours, sixes, and so on; while, in Gothic architecture, they were found to be in threes, fives, eights, &c. He had ascertained, in practice, that when his assistants worked by the cubit of 18 inches, instead of by the ordinary rule of 12 inches, they found much less difficulty in getting their proportions right, for every man could measure by his own arm.

Mr. Bonomi said that Mr. Bell had been very happy in his term "the vase form" of sculpture, and that the meeting was indebted to him for the very interesting manner in which the balance of figures had been illustrated by him.

Professor Donaldson said, in England architects were, unfortunately, compelled to consider their designs for buildings without the elegant accessories of sculpture, whereas every perfect building should have sculptural embellishments, in order to impart to it that intensity of feeling which fine architecture should inspire. The ancients always designed their buildings in connection with sculpture. The French also appreciated the presence of sculpture, and embellished their public buildings in a very beautiful and characteristic manner. The sculpture introduced into their buildings was not of a commonplace character, but consisted of the productions of the very best artists. At the Louvre, for instance, the most beautiful sculpture that could be imagined was found in profusion. He did not know whether Mr. Bell was prepared to accept the vase or the oval form of group; but it seemed to him (Professor Donaldson) that the vase came from the oval, and not the oval from the vase. The oval, it should be remembered, might incline, whereas the vase must be essentially vertical. Vases were an important feature in architecture, for architects were frequently compelled to call them to their aid when they would much prefer groups. This, no doubt, was a sad alternative, but architects were, in point of fact, compelled to avail themselves of it. He had been informed by an architect of eminence that on one occasion, where he had introduced sculpture into his design, he was told to strike it all out, because "they could not afford it." Thus it was that architects who, but for these economical considerations, would gladly use sculptural embellishments, were but too often confined to mere architectural outlines. With regard to sculpture within the tympanum, that designed by Professor Cockerell for St. George's Hall, Liverpool, was very fine, as also that of the Madeleine at Paris. He was of opinion that the figures introduced in the pediment should be as large as possible, otherwise they would not convey the idea of a grand and entire whole, but would look as if they were put in merely to fill up a space. Care, however, should be taken that no portion of the pediment, or of its adjuncts, should interfere with the sculptural effects. At the Madeleine, for instance, the modillions came out, and produced points of light, which gave the idea of so many additional heads in the group of sculpture beneath. When he was at Florence he remarked the manner in which groups of sculpture might be defined, as it were, by four lines. This was to be found especially in the subjects of Michelangelo. They gave the appearance more of parallelograms than of vases. Thus, his figures in the ceiling of the Vatican were of this kind. Michael Angelo's knowledge of architecture might account for this, and succeeding architects had reason to be indebted to that great master for some grand and noble features in his designs. His design, for instance, of St. Peter's, where he combined three orders in one, and raised the form of the cupola, was a fine illustration of the versatility of his talents. Among the painters who treated subjects architecturally was Domenichino; and fortunate indeed was the architect on whose behalf his services were enlisted. In conclusion, he moved that the thanks of the institute be given to Mr. Bell.

Mr. Kerr expressed his desire to second the motion of Professor Donaldson, although he could not entirely agree with Mr. Bell in all his deductions. He feared also that he differed not only with Mr. Bell, but with the majority of the meeting, for when that gentleman announced the doctrine that there was no canon of taste, and that consequently art was an intangible and inappreciable piece of philosophy, the observation appeared to meet with the approval of the meeting. How, he asked, were they, as architects, to discover the scientific laws of nature. Time was, when the whole world seemed to the observer but one mass of confusion; but we now know that it covers one harmonious and regular whole. When he contended in favour of general principles or canons in art, he might be told that his assumptions were unfounded; but he begged to remind them that there was a thing called gravitation, and yet that at one time it was thought that gravitation had no principle, but that it originated in some occult influence which no one could understand. They now knew what the laws of gravitation were; but if, a score years ago, any one had got up at a public meeting and asserted that gravitation had no canon, he would have been applauded. They were dealing that night with architecture, painting, and sculpture; but there were also the arts of poetry and music, and he held that the latter arts might suggest some principles to overcome perplexities with reference to the former. If arithmetical proportions were applied to architecture, a canon would be obtained, to a certain extent. Apply the same to poetry, and a similar result would be found. Gothic ideas and geometrical proportions were prevalent nowadays, but he confessed he was in favour of arithmetical proportions — the good old system which he had studied in his youth.

Mr. Charles Barry said he would gladly have risen to second the vote of thanks to Mr. Bell, especially as he had no fault whatever to find with his address. He had listened with great interest to the manner in which Mr. Bell had brought the subject of harmony of line, proportion, and balance, before the institute, as applicable to his own special art. He had come among them and spoken of his art as applicable to architecture, and had, so to speak, thought out the subject as an architect should do, but perhaps more ably, from the special attention he had given to sculpture, of which many of his great works furnished so convincing a proof. He had shown how simple architectural forms ran through the compositions of the best ancient and modern sculptors. A remarkable illustration of this was to be found in the pediment of the portico of St. George's Hall, Liverpool, the beautiful work of Mr. Cockerell. He (Mr. Barry) had never previously observed the circular forms in the composition of the Liverpool sculpture, to which Mr. Bell had directed their attention, although, now that they were pointed out, they appeared to be clear enough. The notion of the vase form in sculptural groups was new, but was simple, and appreciable when explained. It struck him that Mr. Bell's observations as to statuary in connection with architecture were extremely pertinent, for architecture never could be truly effective without sculpture. Sculptors, however, did not generally treat their subjects with reference to architecture; and architects, in their turn, had obvious difficulties to contend with in regard to sculpture. The high value of such works prevented architects from employing sculpture in many cases where they would otherwise gladly avail themselves of it. There was also another difficulty, which might be traced to the want of cordiality hitherto existing between the professors of the two arts—a non-recognition of the doctrine of Michael Angelo, that there was in fact but one art. He was glad, however, to find that there was now a prospect of a better understanding being established between sculptors and architects, as any movement of the kind must be to the advantage of the two professions, and the furtherance of their common art.

Mr. Kerr said he should like to hear something with regard to the actual cost of statuary. When he was in Edinburgh, he had been assured by Mr. Ritchie, a sculptor of some eminence, that an average full-sized figure, in the stone of that neighbourhood, could be got for 50*l.*

Mr. Barry suggested whether Professor Donaldson might be able to obtain some information with reference to the prices paid to the best French artists.

Mr. C. H. Smith remarked that the value of a statue, as of a portrait, depended upon the quality. They all knew that one constantly found in the streets specimens of portrait-painting marked "This style for five shillings." The price of the stone from which statues were wrought was easily ascertained, but then came the pounds-shillings-and-pence question involved in the production of the group. It was quite plain, from the observations which had fallen from Mr. Kerr, that he had a Scotch mode of dealing with these questions. When he (Mr. Smith) was at Edinburgh some years, with Mr., now Sir Charles Barry, he found statues carved without any model at all, whereas it was absolutely impossible for any one to make a really good statue without a model. He knew from practical experience (for he had carved many statues) what was the cost of production. Allowing a carver 10s. a day, the labour on a statue the size of life, in marble, would amount to 50*l.*, allowing nothing for the artist himself, and exclusive of the model. He himself had made a statue, now in the Museum of Geology, of the Hercules of Glycon, after a model from the original, at which he had worked for ten weeks without getting a farthing, and had paid 70*l.* for assistance to an artist now in a high position at the Academy.

Mr. Bell said that as there appeared a desire to know the actual cost-price of statuary, he had no objection whatever to give any information in his power. Taking a marble statue such as those in St. Stephen's Hall at Westminster, the price paid by the government was 1,000*l.* each: they were seven feet high each. He had executed two of them, and the cost to him, including the risk of marble, interest on the capital invested in the studio, house-rent, taxes, gas-light, &c., amounted to about 500*l.* each, without taking into account the time of the artist devoted to its execution.

Under these circumstances he did not think it would be excessive if a sculptor were to expect cent. per cent. on his outlay. He had endeavoured to induce his brother artists to agree to this scale of remuneration, but he regretted to say that there was no harmony on the subject of remuneration. At one time a sculptor had no hesitation in taking all he could get, while at others he would be content with a very small return, so that he could get the commission. He thought it would be desirable to agree to a cent. per cent. price, without taking into consideration their labour, which was all pleasure! Having denied that he had ever expressed an opinion that there was no canon of taste, Mr. Bell reminded the meeting that a sculptor did not do all the "chipping" himself. If so, the best sculptor would be the man who had the strongest arm, and not the finest intellect.

Mr. D. Wyatt observed upon the desirability of having buildings embellished with sculpture; at the same time he appreciated the necessity of remunerating the sculptor in a proper manner. Mr. Parris had declared that sculpture had no home; but the architects could offer it one in their hearts, and he hoped that in future, architects, sculptors, and painters, would be regarded as professors of arts which, to be perfect, should be associated, for it was impossible for architects to carry out their aims in an effective manner without the aid of the painter and the sculptor. The art of the architect was defective in this respect—that although the architect might make a building perfect in all its proportions, he was unable to place upon it an explanation of what was the purpose to which it was to be applied. Here he must have recourse to painting or sculpture. The sculptures at the Parthenon and at St. Stephen's Hall at once revealed the object for which the buildings were designed. Mr. Bell, when referring to the sculpture in the tympanum of the portico of St. George's Hall, as designed by Mr. Cockerell, had referred to the continuous masses, the contour and the light and shade of the grouping, and it was upon the due subordination of these that the effects of sculpture depended. It was also necessary to take care that great masses balanced, so that there might not be a superabundance of light on one side and a mass of black on the other. Mr. Wyatt then explained the prominent features of the pediment of St. George's Hall, and pointed out the felicitous manner in which Mr. Cockerell had so designed the groups that, while the space was entirely filled, there were no vertical lines to correspond with the pillars of the portico, and that the contour was bold, graceful, and flowing, without any approach to over-crowding.

Thanks having been voted and acknowledged, it was announced that the next meeting of the Institute would be held on Monday, the 10th of January, 1859.

PAYMENT OF THE REAL ARCHITECTS.

SIR,—In Mr. Fergusson's most valuable "Handbook of Architecture," vol. ii. p. 666, he observes, respecting the designers of Mediæval works, "The names usually fixed upon by antiquaries, after so much search, are merely those of the master-masons or foremen of the works, who had nothing to do with the main designs of the buildings." In p. 664 he says, "In the time of which we are speaking, which is the great age of Gothic art, there is no instance of a mason of any grade being called upon to furnish the design as well as to execute the work. It may appear strange to us in the nineteenth century, among whom the great majority really do not know what true art means, that six centuries ago eminent men, not specially educated to the profession of architecture, and qualified only by talent and good taste, should have been capable of such vast and excellent designs; but a little reflection will show how easy it is" [to eminent men] "to design when art is in the right path."

This is little more than had been said, I believe, by Allan Cunningham, in commencing his "Lives of British Architects," by that of Wykeham; *not* Wykeham's contractor, foreman, or "Magister Lapicida," as Mr. Papworth, I suppose, would. He takes it for granted, like every one before him, that Inigo Jones was really our *first* professional architect; that never till his time were the functions, now considered the architect's, delegated from the hands whose own the building was. Of course it no longer suits the professional writer's purpose now to admit this, because, now that we have something like true criticism of the art, at least discrimination of what was art from what is quackery and no art, it would follow that architectural art and an architectural profession were never in the country together,—that one walked out precisely as the other walked in; so that this experiment in division of labour is found, after two centuries and a half, a confessed failure; this branch of human work, instead of gaining, like others, by its detachment from the trunk, from being every great man's occasional business to be a trade's peculiar and constant business, having simply perished thereby; the works of the trade being found beneath any possible criticism, not to bear looking in the face, being called "art" only by courtesy; while for the works that earned and alone justify the title, every one is obliged to recur to times or places that had no architectural profession, to the works (as we should now say) of amateurs. Of course professors may well struggle various ways against this conclusion, and Mr. Papworth does so by seeking to disprove the major, and make out that the great ages *had* a class of professed architects. Well, let him prove it who can! The onus lies surely with him who contradicts, not with me, who simply follow what history and tradition have handed down. Whose are the names that have all along been associated with the great works? Whose that long list so lovingly engraved by Pugin on the frontispiece to his "True Principles" and the tail-piece to his "Contrasts?" Were Elias de Derham, Alan de Walsingham, Wykeham, Bolton, Islip, ecclesiastics or not? Who drew the oldest plan in existence, that for the Abbey of St. Gall (given in Lenoir's volume of the "Documens Inédits sur l'Histoire de France"), and calls the great abbot to whom he addresses it "carissime fili?"

Till the contrary be proved, I assume, with all the world, that the great works of Christendom were designed, that is, had all that the modern "architect" is supposed to do done for them, by some one of the foremost men and civilizers of the time, the clergy. Perhaps I was wrong in saying "a *monk* or ecclesiastic." Designers must have been more than simple monks; and on the other hand, for "*usually*," I should have said *always* an ecclesiastic, even in the case of secular buildings, as is well known of our finest castles, from Bishop Gundulph's Rochester and London, to Bishop Wykeham's Windsor; while the architect of our greatest civil edifice (and the first that is stained with affectation and extensive vice), Westminster Hall, is called *Mr.* Henri Zeneley, the *Mr.* being then the peculiar style of a clerk. Now, of course, what the clergy did for themselves was more carefully and better done than what they designed, like Zeneley, for others, in the profits of which they were not shareholders. The *Builder* has said recently that the best recent works are those in which "*the art is part of the investment.*" Of course they are, and so were the best of every age, and *all* the works of every age that ever had or ever will have art worth the ground it occupies!

In *all* the works of Villard's time, the art was "part of the investment," and this is simply what I said, in saying "the architect of Villard's time" (I did not say "Villard," because it was just as little plain to me as to Mr. Papworth that this hero was ever an architect) received "per-centage" on what his building brought in. If he was a member of the body owning it (which in all church work he was), pray what *was* his remuneration but his share (in modern lingo his "per-centage") in the benefits of a good building? And how could a modern architect be placed in the same relation to his work, but by such a mode of pay as that which Mr. Papworth supposes I proposed as a joke?

Surely it must be a joke of his own to assume, because I once for brevity called the Per-centage-on-outlay system the "per-centage" system, that I was attacking the abstract principle of a per-centage *on anything*. I must "be wrong somewhere;" for, after attacking, "tooth and nail," the architect's per-centage-on-the-outlay, I now defend his payment, which equally begins with a P. Such cavils are really too childish, and I must decline entering into them. All non-professional persons understand the question as far as I can see. They understand that, before there were professed architects, the building designer was simply remunerated *by* the value of his work, and that a real architectural profession must be remunerated like every other, *in some proportion to* the value of their work. What they do not see is the ruinous public waste and disgrace going on, day by day, till such a profession be established; and the responsibility of public men and all who meddle in building for every fruit of this insane state of things.

E. L. G.

FOREIGN ENGINEERING WORKS.

THE Weisbaden Railway appears to have been unfairly treated by the Nassau Government. In March last the State made an engagement with the company to aid the extension of the line which was to be called the Nassau Railway. The Government has now refused any assistance, and in consequence the directors are unable to proceed further. The forfeiture of not only the new concession, but the original line, has been made to the State. So much for English capitalists abroad.

At Kehl the works of the new station of the Bavarian Railway have been partially interrupted by the rigours of winter. Unforeseen difficulties have retarded the progress of the bridge, which ought to have been now completed. In sinking the piles, most of them encountered rock or old masonry, and broke against the bottom. Owing to these difficulties, the rapidity of the current, and the depth of water, it is thought that the permanent bridge cannot be completed before two years hence.

The shareholders of the Lombardo-Venetian and Central Italian have agreed to a fusion with the Southern, Francis Joseph, Croatian, Carinthian, and Tyrolese lines, and have authorised the directors to take the necessary steps for forming one great company. The principal stipulations of the contract with the Austrian Government are the cession by the State of the above lines (except the Francis Joseph, which belongs to an independent company) for a sum of 10,000,000*l.* sterling, of which 7,000,000*l.* are to be paid in instalments during a period extending to 1866. The remaining 3,000,000*l.* are to be paid after 1870, if the railways realize 7 per cent.; but if the company should voluntarily pay 2,000,000*l.* in four instalments from 1871 to 1874, irrespective of their receipts, 1,000,000 sterling will be remitted. A guarantee of 5 per cent. is granted, with one-fifth for the sinking-fund for each separate group. The company is also exempted from paying various taxes, and is allowed to import certain articles at half the duty. At the expiration of ninety years from 1866 the railways revert to the State, but after 1895 the Government has the right to take back the system in exchange for a rente on each group equal to the average revenue of the last seven years, excluding the two least profitable. The rente must in no case be less than 5½ per cent.

BREAKWATERS.

INSTITUTION OF CIVIL ENGINEERS.

ON December 7th, Mr. Locke, M.P. president, in the chair, the paper read was, "A Description of a Breakwater at the Port of Blyth, and of certain Improvements in Breakwaters, applicable to Harbours of Refuge," by Mr. M. Scott.

This communication was divided into four parts, the first referring particularly to the breakwater at the Port of Blyth; the second to the theory of waves; the third to the theory of hydraulic construction, including form and methods of building; and the fourth relating exclusively to the author's designs, including his assumed improvements in the construction of breakwaters, which had been suggested by his experience in connection with the work at Blyth.

At Blyth the work was originally intended to be, and for a length of 1,800 feet was constructed, entirely of stone; but a failure in the supply of material induced a change. Mr. Abernethy proposed to employ timber and stone, after the manner adopted at Boulogne and at Calais. These views had been carried out in a part of the breakwater which had been completed for some time, which consisted of a framework of timber, filled with stone.

In the third part, under the head "Theory of Work," including the theories of form and of construction, the published views of General Sir Harry Jones, Sir William Denison, Professor Airy, Capt. Vetch, &c. were freely made use of; and it was remarked, that when waves could be reflected, they ought not to be broken, and that when, from shallowness of the water, the wave must break, the operation should be spread over the largest surface, and over the longest time possible. It was desirable, if practicable, so to direct the water, that the force of one portion should tend to neutralize the destructive energy of another portion; it being better to effect the object of stilling the water, by changing the direction, than by absorbing the force of the water in motion. The first condition would be fulfilled by a vertical wall, and the second by a slope. The third was more difficult of attainment. Under the term vertical wall might be included steep slopes, say from 60° upwards. It was thought, that as the vertical

face in deep water did reflect waves, the seaward face of breakwaters, especially near the entrance to a harbour, should be built nearly vertical; for should it be a slope, the risk to a vessel approaching the entrance would be increased. With regard to the inner or harbour side of a breakwater, it was obvious that a vertical face was the best; inasmuch as the work then constituted a valuable quay, alongside which ships might lie to load and unload passengers, cargo, or stores, whereas, in the case of a slope, no vessel could approach. With regard to slopes, the author considered the true principle to be, that they should be employed only for the purpose of directing or guiding the waves, to neutralize one another. This he sought to effect, at least to some extent, thus: first, the slope formed of timber was not to join the ground at the foot: there was to be no toe to be injured, but a space through which the water would freely pass. Secondly, the surface of the slope, instead of being continuous, was to have horizontal open spaces, like a gridiron, through which part of the water would fall in its passage upwards, and part on its recession.

The combination of the vertical wall and slope, as carried out at Alderney, at Holyhead, and at Portland, was then alluded to, and it was believed that as, even during a very heavy sea, there was but little agitation at a depth of 15 feet under the surface, this section would present nearly if not all the advantages of a vertical wall, carried up from the bottom of the sea. The quantity of stone used in these works was, however, very great, so that there were many situations where that method of construction would be inapplicable. There were other disadvantages attaching to this form. First, these breakwaters were not available as quays. Secondly, the seaward profile was such that the waves must break upon the wall with all their violence, and hence the weight of material and the nature of the work necessary to resist such a shock were no criterion of that required in a vertical face, from which the waves were reflected, and against which they did not break.

The subject was next investigated under the head "Theory of Construction—Stonework," and it was urged that the faces of works exposed to the sea should either have the joints sealed, to prevent the entrance of air, or the work should be so open as to allow the air to pass out with facility. Continuity of face was most important in breakwaters, particularly with vertical faces, for without this, the strength of the work, as a whole, would be dependent upon, and be measured by, the power of resistance of the weakest part. Hence arose the necessity of exercising great care during the construction, as the displacement of a single stone might lead to the destruction of the whole work.

The fourth section of the paper was occupied with a description of the author's improvements in the construction of breakwaters. He divided these works into two classes—those intended for deep water being wave reflectors, and those for shallow water being wave breakers. Excepting what was called the wave screen, the reflectors and breakwaters were of a similar character, consisting of a timber casing, filled with stone. The stone hearting constituted the power to resist removal as a whole, and the timber facing secured the stone from being disintegrated, or carried away in detail; so that if the work was moved it must be bodily. Further, the work was so connected together, that each part supported its neighbouring portions; and there was no tie between the work and the ground. It simply rested on the surface, and the stability depended wholly upon its weight. Other leading features of this arrangement were then noticed, and it was stated that the lower tie would accommodate itself so perfectly to an uneven surface, that the erection might proceed on sand and clay as well as on rock—on broken as well as on even ground, almost indifferently.

In reference to the questions of durability and cost, the author was of opinion that properly-prepared timber would last twenty years, and that the section for a depth of ten fathoms would cost, completed, about 70*l.* per lineal foot; whereas, the stone breakwater at Alderney was said to have cost 190*l.* per foot, and that at Portland, 150*l.* per foot. This difference in first cost was so great as to leave, it was considered, an ample margin for the removal of the timber when it decayed.

Accommodation for the Timber Trade at Birkenhead.—The Mersey Dock and Harbour Board have agreed to erect cranes on the quays of the Canada Dock, Birkenhead, for the use of the timber trade.

THE "BUILDER'S" LAW NOTES.

Highway Act.—Building.—Defendant built a cottage upon a piece of land which had formerly been part of the highway, but which had not been used as a highway for many years, and had been, during all that period, in the possession of the defendant. He was convicted by justices of a breach of the Highway Act, but the Court of Queen's Bench set aside the conviction, on the ground that the words in the Act, "within the distance of 15 feet from the centre of the highway," must mean a highway in use as such.—*Chapman* v. *Robinson.*

Turnpike.—Exemption.—A clergyman is exempt from turnpike, not only in his own parish, but also when going to another parish to discharge parochial duty on the invitation of the churchwardens.—*Temple* v. *Dickinson.*

Principal and Agent.—A cashier is not authorised by virtue of his employment as cashier to make contracts with workmen.—*Minns* v. *Smith.*

Joint-Stock Company.—Liability of Director.—The chairman of a mining company falsely represented to the Stock Exchange that two-thirds of the shares had been taken and paid upon, and thereby procured the stock to be entered on the official list. A stranger, relying on the correctness of the insertion, purchased shares, and he was held to have an action against the chairman for his fraudulent representation.—*Bagshaw* v. *Seymour.*

Bill of Exchange.—Where a bill was accepted "payable at the bank," presentment at the bank on the day it becomes due must be proved, and presentment to the acceptor at his private residence is not sufficient to charge the indorser.—*Saul* v. *Jones.*

Trustees.—Building.—Land was conveyed to trustees upon trust to rebuild a chapel, with funds supplied by the congregation; but these being exhausted, they borrowed the amount necessary to complete it on their own security, with a deposit of the title-deeds of the land. The trustees had no authority to pledge the deeds. They were afterwards compelled to pay the amount, and it was held that though they had a lien on the deeds, they were not entitled to a sale of the property to reimburse them for their loss.—*Darke* v. *Williamson.*

Public Library.—Poor-rate.—A society instituted for the purposes of science, literature, and the fine arts, and where the payment of subscription fees is under an obligation voluntarily incurred, is exempt from poor-rates.—*Re the Bradford Library.*

Right of Way.—A map which had been used by the steward of a lord of a manor to show what lands were copyhold, is not evidence to prove whether the ways marked on it were public or private.—*Pipe* v. *Fulcher.*

CHURCH-BUILDING NEWS.

Peterborough.—It is understood that the dean and chapter of Peterborough Cathedral have offers from four or five persons to increase the stained glass in the cathedral, by the insertion of memorial windows. The window recently erected by Messrs. Clayton and Bell, of London, occupies the central archway (formerly opening into the Lady Chapel) of the north transeptal aisle. The artist has chosen the style of glass-painting consistent with the tracery of the window, viz. that of the fifteenth century. There is an exuberant display of canopy-work in the heads of the lights, with groups of figures strongly thrown out by heavy colouring, while the subordinate details are but lightly tinted, in order that the eye may not be carried away from the main designs.

Bedford.—Estimates, says the local *Times*, have been received by Mr. Usher, surveyor, of Mill-street, for the erection of a small chapel at Pavenham, as follows:—Norman, 168*l.* 6s.; Craddock, 167*l.* 10s.; Hilton, 156*l.* 8s.; Cunvin, 155*l.* The last was accepted. The architectural style of the chapel is Norman, and it will be built with Arlsey bricks, stone dressings, and covered with slate. In the interior of the chapel the floor will be on a considerable incline from the position of the speaker; and instead of the ordinary box pulpit, there will be a platform extending across the chapel, elevated about 18 inches. The roof will be partially open, with tension rods, and all the timber exposed to view will be stained and varnished; the windows glazed with quarry lights, and the outer edges with opaque glass to form a contrasting margin.

Sutton.—Considerable want of church accommodation having been felt in this locality, Mr. T. Alcock, M.P. has had a temporary one built, which is to accommodate 550 persons. It is constructed of hollow bricks, with an open roof. All the pews, gallery, and vestry, are intended to be open. The contract was taken by Mr. Fisher, builder, Reigate, for 900*l.*

Sevenoaks.—The new chapel of ease has been consecrated. The necessary funds were subscribed by the noblemen and gentlemen resident in the parish and neighbourhood. The Marquess Camden offered a piece of ground, about 2,166 square yards, and the Dowager Countess Amherst, besides subscribing to the building fund, also gave the use of the stone quarries on the Knowle estate, from which the greater portion of the stone was dug. The drawing of the requisite plans, &c. was entrusted to Messrs. Morphew and Green, of London, architects; and, after public notice, the tender of Mr. Punnett, of Tunbridge, builder, was accepted. The building, which stands near the high road, is of Kentish rag, with facings of Bath stone, in the Early Decorated style. The open seats are of stained deal. There is accommodation for 350 persons, 250 free.

Brecon.—The erection of the new church of St. David, in this parish, has been entrusted to Messrs. Wm. Williams and Sons, of Llanfaes, who have contracted for its erection for 1,100*l.* The architect is Mr. John Clayton, of London. The church is much wanted.

Oldbury.—The village church of Oldbury, near Bridgnorth, which has been considerably enlarged, and almost entirely rebuilt, is now re-opened for divine service. The nave and chancel have been considerably lengthened, and a north aisle has been added. The whole of the old north wall has therefore been removed, and the new aisle is separated from the nave by three Gothic arches, resting on circular pillars, with moulded capitals. The chancel arch is in a corresponding style. The roof of the chancel is in open timber work, boarded, and corresponding with the roof of the side aisle. The nave retains its original flat ceiling, slightly raised. The floor of the chancel is laid with tiles; and, within the communion rails, with tiles of a selected Mediæval design. The chancel window is plain, with three lights, the centre one being considerably raised above the others. The body of the church is lighted by two-light windows in the aisles, and by two similar windows on the south side of the nave. There are also two small windows at the west end, one in the nave, and one in the aisles. The accommodation has been increased and improved; the whole of the old high pews having been removed, and sittings for 270 persons substituted. The new pews are low, and fitted with doors. The building is warmed by means of flues beneath the floor, into which an ornamental iron trellis-work has been inserted to admit the warm air. The whole of the outside work is in the Early English style, and has been executed in freestone, presented by Sir John Dalberg Acton, of Aldenham, and got from a quarry not far distant from the church. The alterations have been designed by Mr. Charles Ainslie, of London, architect; and the work done by Messrs. Nevett, of Madeley. The contract amounts, according to the *Shrewsbury Chronicle*, from which we quote, to about 900*l.*

Ashley Abbotts (*Salop*).—Ashley Church, which has lately undergone restoration, is a structure of considerable antiquity in a secluded situation, surrounded with beautiful scenery. Previously to recent alterations, it consisted of a nave of the early part of the twelfth century, and a chancel erected in the reign of Charles I. About 1650, the number of the bells was increased to three, and a wooden tower built for them on the inner side of the western wall, the effect of which was very bad, both in the church and about the roof: it necessitated, moreover, the introduction of that common pest of village churches—a western gallery. At a subsequent period the exterior was also disfigured by a brick porch (so called), and several wooden windows inserted to supply the deficiency of the light which had been admitted through the small Norman apertures. Two years ago, Mr. Wing, the present incumbent, availing himself of the better feeling which has happily come over the country in reference to ecclesiastical edifices, invited his parishioners to unite with him in promoting improvements, and not without some results. A porch of a correct ecclesiastical character has been constructed at the expense of one gentleman; and the southern side of the nave rebuilt by subscription. These portions were executed in 1856, and have led to further alterations this year. By means of an ample contribution from the incumbent, with additional assistance from the gentlemen above alluded to, and other helps, the wooden tower has been ejected, a bell-turret, with a somewhat lofty spindle, substituted, and the west end of the church restored

the whole result transforming this previously unsightly building into a decent house of God, though still of a humble character for so rich a connection. It was intended to preserve as much as possible of its venerable walls, but the extremely rude and rough description of the windows and walling, made an entire change in the style desirable. the new work is consequently not Norman, but Decorated. A considerable amount of tracery in the new windows renders the south front effective and lively; and the west end, which has bold arches, has also the picturesque feature of a small spire rising above the trees which embosom it: this is a pleasing little acquisition to the scenery, which we trust will provoke further reformation in the spireless churches of the neighbourhood. The alterations have been designed by Mr. Wing, of Melton Mowbray, the brother of the incumbent, aided by Mr. Johnson, of the same place: the latter has had the execution of the work.

Monk Melton.—The incumbent of this parish is about erecting a school, church, and master's residence, for the poor district of Smithers, a site having been given by Lord Wharncliffe, who will shortly lay the foundation-stone. The buildings will be plain, and of local ragstone walling, and sandstone dressings. The church is surmounted by a small bell-turret, and the roofs of both are slated. The designs and working plans have been furnished by Mr. J. G. Stapelton, Jun., of London.

Pontefract.—A corner-stone of new cemetery chapels was laid recently by Richard Moxon, esq. mayor. Mr. William Kerby, of East Retford, Notts, is the architect, whose design was accepted in competition, in July last. The builder is Mr. W. D. Cameron, of Barnsley, Yorkshire.

Chorlton-upon-Medlock.—The Lord Bishop of Manchester has consecrated St. Luke's Church, Chorlton-upon-Medlock, which has been recently repaired and improved. The church stands in Bedford-street, Brook-street, and was erected so long ago as 1804. The renovations consist of cleaning, painting, and decoration. A new belfry has been erected at a cost of 400*l.*

Ripon.—The Longley memorial window is to be placed in the south aisle of the nave of Ripon Cathedral. The window is of three lights, which are to be filled with figures of Faith, Hope, and Charity, the last occupying the centre compartment. Below each figure are appropriate groups. Messrs. Hardman, of Birmingham, are the artists engaged to furnish the designs and the materials.

Alfreton.—The foundation-stone of St. Andrew's Church, Swanwick, in the parish of Alfreton, was laid on 10th ult.—St. Andrew's day,—by Mrs. Palmer Morewood, of Alfreton-park. The church is to be erected from the selected design furnished in competition by Mr. Benjamin Wilson, architect, Alfreton, and is in the Decorated style of architecture. It consists of a nave, with a north aisle (provision being made for the erection of a south aisle at a future period), chancel, vestry, and a porch on the north side. The exterior of the building is to be of rubble stone, in regular courses, with quoins and Amber-lane stone dressings. The internal length of nave is 61 feet, and the width, including side aisle, 37 feet 6 inches, and it will seat 350 persons, 300 free. The works are being carried out under the superintendence of the architect, by Mr. Joseph Evans, the contractor.

Morpeth.—The foundation-stone of the new Presbyterian Church at Morpeth has been laid. The design is Decorated Gothic, and the edifice will afford accommodation for 858 persons, 552 on the ground-floor, and 306 in transept and end galleries. In the centre of the principal front is a tower and spire. The body of the church is open, galleries being placed only over the transepts and session-house. The roof will be of one span, and surmounted by an ornamental cresting. The church is to be built of rock-faced blocking, with chiselled freestone dressings. The whole of the woodwork will be stained and varnished, the windows glazed with cathedral glass, and the church heated and ventilated. The whole will be carried out under the superintendence of the architect, Mr. Matthew Thompson, of Newcastle.

Hawick.—The episcopal church of St. Cuthbert, Hawick, has been consecrated. The style is Gothic of the first period of decorated architecture. The church has been built at the sole expense of the Duke of Buccleuch. The architect is Mr. Scott. Messrs. Herbertson, of Galashiels, are the builders; and the erection has been superintended throughout by Mr. R. Cowan, master of works to the Duke of Buccleuch. The extreme length of the church is 100 feet; length of nave, 66 feet; of chancel, 24 feet: breadth of nave, 44 feet; of chancel, 20 feet. The height from floor to pitch of roof, is 47 feet; and the extreme height to top of belfry, 69 feet. It will accommodate about four hundred, inclusive of children. The church consists of a nave with side aisles, separated by lofty arches; a porch on the south side, and a chancel with north aisle appropriated to vestry and organ-chamber. The west end of the chancel is semicircular, and surrounded in the interior by a blank arcade, the pillars of which have foliaged capitals. The chancel arch is surmounted by a belfry with two bells, which were supplied by Messrs. Mears, of Whitechapel. The whole of the windows are of coloured glass, supplied by Messrs. Ward, of London; those in the chancel and at the west end being filled with various scriptural designs. The pavement of the passages and chancel is of tiles. The roof is open and of fir, that of the nave being stained, but the chancel roof is painted in colours by Messrs. Moxon, of London. The seats in the nave are of stained fir, but those in the chancel, together with the Prayer-desks, Bible-desk, and alms-box, are of oak, carved. The pulpit and font are of carved stone, the workmanship of Mr. Kerr, of Edinburgh. The standards for altar railing and choir desks, and the hinges on the screens, have been executed by Messrs. Melrose, of Hawick. The remainder of the metal-work (with the exception of the gas-standards, which were supplied by Messrs. Skidmore, of Coventry) was furnished by Mr. Balmer, of Kelso. The whole from the architect's design.

PROVINCIAL NEWS.

Droylsden.—On the 20th and 22nd ult. the Droylsden Institute was inaugurated. The design for the edifice was furnished by Mr. Alfred Waterhouse, of Manchester, who has also superintended the erection, and the contractors were Messrs. Thomas Bates and Co. of Droylsden. The building is a rectangular structure in the Gothic style, two stories in height, and faced with red bricks, relieved with stone dressings and white brick bands, and standing on a basement of stone. The roof is acute in pitch, covered with alternate slips of blue and green slates, and perforated on the south with five dormer windows, and crowned with an octagonal ventilating turret, in the centre of the apex or ridge. On the ground floor of the south or principal front is the library, to be used as a committee-room as well, and there is also a class-room for female members, lighted by a triplet window. On the opposite side is a news-rooms, 28 feet by 18 feet, fitted up with tables of pitch-pine, and beyond are two class-rooms, provided with desks. The whole of the upper story forms a hall, 60 feet by 28 feet, and 31 feet 6 inches high, suitable for lectures, concerts, and public assemblies, with a permanent graduated platform at one end, to which a staircase from the library affords private access. It has an open-timbered roof of high pitch, sustained by five stained deal principals. The room is lighted by seven three-light windows on the south and east sides, by the dormer windows above, and by a rose window in each of the gables. The total cost of the building, with furniture, will be about 1,200*l.* of which about 620*l.* have been secured.

Sherburn.—Mr. John Bulmer, builder, Darlington, has taken the contract for masons' work in building the new hospital at Sherburn, at 4,000*l.* Mr. Thomas Nicholson, of Gainford, contracts for the joiners' work, at 1,600*l.*

Haltwhistle.—A new school is shortly to be erected here if funds can be realised. Plans and specifications have been obtained from Mr. Joseph Gordon, of London, and the committee invited the Rev. G. R. Moncrieff, Government Inspector of Schools, to deliver a lecture, which he recently did, on the subject of educational principles in connection with the project.

Kirkaldy.—The town council after a good deal of discussion on the Corn Exchange plans sent in by Mr. Smith and Messrs. Hay, have decided by a majority of 12 to 5 in favour of Messrs. Hay's.

AN IMPROVED SELF-ADJUSTING VICE.—A Sheffield manufacturing firm, Messrs. Eastbrook and Allcard, have registered an adjustable bench-vice (No. 4,126), the chief feature of which is the appliance of a ball and socket joint to the movable jaw, so as to allow of the vice adjusting itself to the sides of any tapering or other irregular object introduced between its two nippers. The legs are made long, so as to enable the jaws to take a firmer hold of the object between them than usual with the old staple vice, so that the new instrument more resembles the parallel vice.

IRELAND.

At a meeting of the Dublin Corporation on the 22nd ult. it was resolved,—"That the request of the Moore Testimonial committee to be permitted to *alter* the pedestal on which the statue rests should be acceded to," although Alderman Reynolds at first dissented, and said that he viewed with a feeling of national indignation and shame the monument that had been erected to Ireland's greatest bard, and that he should wish to see it in the fifteen acres of the Phœnix-park instead of the centre of the City. This was a matter competed for. Forty designs, or thereabouts, varying in merit, were sent in; but they were rejected; and the pedestal, as executed, was the design of an architect *not a competitor*. Referring to this, we may mention that, in the immediate locality, the Provincial Bank have taken new premises, and are about to erect an important building fronting College-street. We trust this will be an additional inducement to the Board of Old Trinity to take down the shabby and unsightly wall of the college boundary in that street, and not be behind in the path of progress, which is evidently manifest as regards the Irish metropolis. At last the Goldsmith testimonial seems to be in a fair way of accomplishment. The centre of the area in front of the college has been decided on, and two gate entrances will be formed in the railing in lieu of the one at present, which is immediately opposite the doorway leading to the square.

The new offices of the Ulster Bank are rapidly progressing. Two of the Doric monolithic pillars, 15 feet in height, of the entrance portico, as also a portion of the entablature, have been fixed in their places. They are of Scotch freestone.

A porcelain factory on an extensive scale has been commenced at Belleek; the first of its kind, we believe, in Ireland.

A new minor model national school is to be erected at Newtownstewart, county Tyrone, by the Board of Public Works.

Extensive works are to be executed at the church of Desertaghill, county Derry, according to plans prepared by the Ecclesiastical Commissioners' architect; as also at the church of Tomb (Camolin), county Wexford.

The proposed alterations and additions to the County Mayo Court House are now entrusted to Mr. George Wilkinson, architect, who has prepared new plans for the same. A competition recently took place in this matter, and a first premium of 50*l.* was awarded to Mr. E. H. Carson, architect, Dublin.

A new (R.C.) church is in course of erection at Blessington, county Wicklow, Mr. McCarthy, architect; Mr. Robert Farrell, of Dublin, the builder. It consists of sanctuary, chancel, transepts, and nave; length from east to west being 90 feet, and breadth at transepts 60 feet. There is a great east window and a small belfry. The site is picturesque, near the foot of the Wicklow mountains. The expenditure up to present time is, 1,600*l.*; but 1,000*l.* more are required to complete it.

The Irish railway bills to be brought before Parliament next session comprise the Bagenalstown and Wexford (deviation); Belfast and Derry Junction; Charleville and Patrick's-well; County Donegal; Cork and Kinsale; Dublin and Drogheda (widening of Dublin terminus); Dublin and Wicklow (extension to Gorey); Dublin and Meath (extension to Great Southern and Western line); Great Northern and Western (Castlebar extension); Kilrush and Kilkee Rails, and Poulnasherry Embankment; Midland South-Western (Cavan to Clones); ditto (deviation of Sligo extension); ditto (branch to River Liffey); North-Western (Elphin to Castlebar); Newry and Armagh (deviation and branches); New Ross; and Ulster-Monaghan to Clones.

ELECTRO-TELEGRAPHIC PROGRESS.

SHOULD the Government agree to secure the Atlantic Telegraph Company to any extent in the laying down of another cable, surely the Government will insist on a preliminary investigation as to the best possible form and size of the proposed cable. The more the subject is discussed, the more preposterous does the iron casing of the present deep-sea cable appear, and the more doubtful its construction generally. The comparative merits of gutta-purcha and India-rubber for the non-conductor ought carefully to be tested and considered, as we before suggested; as also those of hair lines and of wires of thicker calibre for the conductor; and the question of weight is also highly important.

A pamphlet entitled "A Description of the Patent Elongating Tunnel Telegraph Cable, suit-

able either for Deep or Shallow Water, with Reasons for the Failure of the present Atlantic Cable, and the Means by which such Failures may in future be avoided," has been published by Messrs. Longman and Co. The authors, Captain Drayson, R.A. and Captain Binney, R.E. propose the formation of a cable weighing only 5 cwt. per mile, instead of 20 cwt. as in the present Atlantic cable. The core is a single wire of copper (one-tenth or one-eighth or so of an inch in diameter), first coated or washed over with India-rubber, then carefully warped round with spun silk, and again painted with rubber. It is then enclosed in a tunnel or tube covering of vulcanized rubber, square outside and cylindrical within, with space for air as well as the wire, and with one per cent. of wider spaces for occasional helical coiling in the wire to allow for sudden strain. There is one serious objection, however, to air space in such a tube. The cable, if solid, may be exposed to the pressure of the ocean at great depths, probably, without injury, especially when the uncrushed and tender shells, and light sandy dust, got thence by Lieut. Maury, are considered; but it is well known that where air enclosed space is exposed to such pressure, as in glass bottles even carefully and almost hermetically sealed, the water forces its way in, and occupies the interior. In the case of the proposed tube, perhaps, a mere collapse might be the result; but then the air enclosed would burst out the tube to a certainty, and open a way for the water to enter, even without such capillary percolation as would doubtless otherwise take place. There are good suggestions, nevertheless, in the pamphlet referred to, and indeed otherwise there is a general similarity to our own suggestions, made some time since.

A "Steam Telegraph Company," with a capital of 100,000*l.* in shares of 10*l.* each, is in progress of formation. The object of the company is to work Mr. Isham Baggs's patent for improvements in apparatus for lighting, signalling, and telegraphing by means of electricity. The most important of the inventions, it may be remembered, consists in the application of steam-power to electric telegraphy, by which means not only short messages but lengthened reports may, it is said, be conveyed with increased precision and rapidity to any distance along a single line of wire; so that a despatch composed of 2,000 words may be sent in the same space of time as is now occupied in the transmission of messages of not more than 20 words.

An undertaking is about to be introduced, called the London District Telegraph Company, for the purpose of providing the various localities in the immediate neighbourhood of the metropolis with the means of telegraphic communication. The required capital is 60,000*l.* and it is proposed to divide the city and suburbs into eleven districts, each containing 100 stations, so as to ensure that a despatch may be delivered in any part in the course of a few minutes. Messages of ten words are proposed to be sent for fourpence to any place within four miles of Charing-cross. The construction, so far as practicable, will be on the inexpensive overhouse system adopted in Paris, New York, and Brussels, and lately in London by Messrs. Waterlow and Sons.

RECENT AMERICAN PATENTS.*

Wrought-Iron Girders.—*Thomas G. Gaylord*, Cincinnati, Ohio.—Claim—The duplex girder or beam, composed of an upper piece having the form of an inverted Y, and a lower piece having the form of an inverted T, whose stem or "comb" is adapted to fit closely within the apex of the upper piece.

Cut Nail Machines.—*G. C. Grodhaus*, Jamestown, Ohio.—Claim—The arrangement of the sheath, the circular guide, and the fork bar, the said sheath having its upper end pivoted, and its lower end travelling upon a track, the circular guide extending from one set of cutters to the other, and the curve of its arc corresponding to the sweep of the lower end of the sheath, and the fork-bar being attached thereto, and carried by the same bar which actuates the sheath.

Metallic Roofing.—*J. C. Gaston*, Oxford, Ohio. Claim—1st. Connecting the plates for a metallic roof by means of yielding joints, consisting of only two thicknesses of metal, and formed by overlapping the flanches turned in the same direction on opposite edges of each plate, in combination with the boarding of the roof, formed of different thickness of plank, to correspond with the difference in the level of the plates, when connected, and so arranged as to give support to the under sides of the plates, and also to the joints. 2nd. The combination of the lock on the lower corners of the plates (formed by the hook in one plate, and the slot in the other, or their equivalents), with a side joint formed by the overlapping of the plates.

Riveting Machine.—*P. B. Tyler* and *William Jones*, Springfield, Massachusetts; and *B. Lathrop*, Sandusky, Ohio, Assignors to P. B. Tyler, aforesaid.—Claim—The employment of a pean, as described, shaped to the configuration of the head of a rivet, and operated in the manner set forth, by which a rivet-head is formed by a succession of light blows around the circle.

Continuous Metallic Lathing.—*Birdsall Cornell*, City of New York.—Claim—Forming metallic surfaces for the reception of castings of plaster, &c. of sheets of metal, after they have been swaged into alternating elevations and depressions of a retaining shape.

Roofing Cement.—*Wm. P. DeGolyer*, Schenectady, New York.—Claim—Combining an elastic basis, consisting of tar, canvas, and earthy matter, with a super-imposed coat of iron turnings filled in with earthy matter.

Roofing Cement Composition.—*Robert Glennon*, New Orleans, Louisiana.—Claim—The composition made up of the ingredients. *Note.*—The aforesaid ingredients are spirits of turpentine, Vandyke brown, alcohol, gum shellac, linseed oil, oil of amber, Japan varnish, sulphate of zinc, and coal tar.

Cement Composition for Roofing.—*Bradley L. Prime*, Hamilton, Ohio.—The composition is made up of the following:—Coal tar, 1½ gal.; vegetable tar, ½ lb.; brimstone, 12 oz.; asphaltum, 6 oz.; india-rubber, 1½ lb.; gutta-percha, 1 oz.; gum copal, 2 oz.; red oxide of lead, 8 oz.; red lead, 8 oz.; umber, 8 oz.; Spanish whiting, 16 oz.; hydraulic cement, 4 oz.; Japan varnish, ½ pint.—Claim—The combination in the proportions set forth.

Paint Compounds.—*Wm. G. Huyett*, Williamsburgh, Pennsylvania.—Claim—A paint compound composed of ground calcined iron ore, lime, and carbon.

* Selected from the condensed lists published in the *Journal of the Franklin Institute* of Pennsylvania.

POLICE MAGISTRATES AND DISTRICT SURVEYORS.

We are invited, in all cases of want of notice by defaulting builders, forthwith to summon such offenders before a magistrate.

Such a proceeding, if taken before a tribunal who could understand building terms and the matters brought before them, and disposed to aid and assist the surveyor, and carry out the Act, might be a proper and prudent course.

As it is, the *onus* is on the surveyor to make the police magistrates *understand* the case; and the interpretation placed by them on the forms in the Building Act is often most ludicrous, arising from the fact of their being asked to adjudicate points upon which they have no knowledge; and, from their entire ignorance of construction, they are placed often in an unfair and invidious position. The result of appeal to such a tribunal is further to *render doubtful and make difficult the position of the surveyor* by reason of all kinds of conflicting decisions, arising mostly from the bearing and terms of the Act not being perceived and understood,—or, but remotely, and a natural leaning to the *popular side of the question*. The Act makes it discretionary on the surveyor whether to adopt proceedings or not: it is permissive for him to do so. What is wanted is the *re-imposition of treble fees*, omitted from the last Act most unaccountably. These the magistrates used to grant, and they acted to deter builders doing work without notice. At present, the treble fees having been abandoned, good and bad are put on an equal footing, and an actual premium to dishonesty given, as many now run the chance of discovery. It may be said there is still the 20*l.* penalty; but magistrates, in the fulness of their wisdom, award 1*l.* in place of 20*l.* about which, if caught, builders do not care. A District Surveyor.

PUBLIC WAITING-ROOMS AND HALTING PLACES.

At the last meeting of the City Sewers' Commission Deputy Obbard introduced a memorial from Mr. George Jennings, of which the following is the substance, as shown by several designs accompanying his statement of particulars:—He proposes to occupy a space, not more than is at present appropriated to any of the existing halting-places in different parts of the metropolis, for *under-ground* urinals, lavatories, drinking-fountains, and public lamps, the water used to be sufficient for all the purposes, and intended finally to flow into the sewers. He proposes that the wall space should be covered with time-tables of the different railways, lists of cab fares from that particular point to any part of the metropolis, and other useful information, every arrangement being made for perfect ventilation.

With that brave liberality which may partly explain the success which has attended Mr. Jennings, he offered to supply and fix, in any part of the City, a complete station, as shown in his drawings, free of any charge. The proposition was referred to the Improvement Committee, and will doubtless be accepted.

Books Received.

The Forest of Dean: an Historical and Descriptive Account. By H. G. Nicholls, M.A. Perpetual Curate of Holy Trinity, Dean Forest. London: John Murray, Albemarle-street. 1858.

The Forest of Dean has long been celebrated as a peculiar district, with laws of its own, and forming a sort of sanctuary to which those who came to political grief in disturbed and lawless times fled for refuge. Such a district, valuable as it has been for centuries, or rather from time immemorial, on account of its iron mines and its forest-mines—as we may call them—of stout English oak, and latterly for its "sea coal" and its collieries, well deserves a history of its own, and here it has got one worthy of its merits.

The "free miners" of Dean Forest have for ages enjoyed the right of erecting forges, cutting wood, and pasturing their cattle within the precincts of the forest. They have a sort of Magna Charta of their own, granted by Edward I. and confirmed by traditional laws and privileges. Near the centre of the forest, in the inmost ring of the several croppings out of the upper, middle, and lower coal strata,—about which they either knew or cared little or nothing, however, in ancient times, although now these strata constitute the very strength and power of the district, by help of which its associate iron is converted into use,—there stands the "Speech House," the parliament house of the free miners; and they have a legal court, called "The Court of the Wood." In these institutions all questions of district law are settled.

A century ago the "Forest" was a rough district, seldom visited by strangers, and enjoying no very creditable reputation. The making of new roads, however, the development of its mineral treasures, the building of churches and schools, the importation of capital, together with the usual accessories of an improving age, have thrown it open to the sunshine of civilization: it is now not only the resort of the world outside of it, but in itself it has become an emporium of iron *manufacture*, and a large exporter of ores and coals, while the plantations were never before in a condition so promising as a national property.

Mr. Nicholls, in the little volume before us, devotes the larger portion of his work, which is written with much diligence and perspicuity, to tracing, through various phases, and a long course of time, the wonderful progress this Forest has made, from a condition but little removed from barbarism, to its present high state of prosperity. He has given a complete account of its iron trade from the time of the itinerant forges down to the foundation of the large furnaces now at work. From the voluminous documents at hand in the shape of blue books,—commissioners' reports; from the notes of Mr. Machen, who for half a century managed the Forest for Government, he has also been able to furnish us with a full and detailed history of the timber, its growth, destruction, and renewal in successive periods. Forest laws and customs, the ancient miners' courts, and their usages, are collected and explained; nor are the historical legends of a rude race quite forgotten; and certain remarkable antiquarian remains are pointed out, in Druidical relics, churches, &c.

The following summary of the recent extent of the iron and coal trades in the district is from Mr. Nicholls's volume:—

"Eight blast furnaces were at work in the forest in the year 1856, and produced upwards of 24,132 tons of iron of the best quality. Twenty iron mines were awarded by the Mining Commissioners in 1841, and these are since increased to upwards of fifty, several of them comprising very extensive workings, and are furnished with very powerful pumping engines: that at Shakemantle raises 198½ gallons per stroke, and the one at Westbury-brook twenty-four gallons from a depth of 186 yards.

The annual yield of iron mine from the four principal pits is:—

	Tons.
Buckshaft	14,574
Old Sling Pit	13,263
Westbury-brook	11,725
Easter Iron Mine	10,782

The total yield from all the iron mines in the forest for 1856 was 109,268 tons."

"The number of coal works in the forest at the close of 1856 was 221, yielding in that year to the public use upwards of 460,432 tons; the ten largest collieries each producing as follows:—

	Tons.
Park End Colliery	86,973
Light Moor	86,508
Crump Meadow	41,507
Bix Slade	26,792
The Nelson	24,539
Hopewell in Whimberry	18,858
Valletts Level	17,918
Bilson	17,395
Arthur and Edward	12,857
New Strip and at it	11,502
	344,849

Probably a twentieth part of the above total should be

added to the amount charged, in consideration of the quantity consumed by the colliery engines, thus making the gross annual produce a third of a million of tons."

The stout English oaks of Dean Forest in times of old formed a subject of respectful consideration and of wholesome dread to the Spanish Government, and the Spanish Armada was said to have had peremptory orders at least to destroy this forest if they failed in doing anything else. The ambassador had previously been instructed to "get it done by private practices and cunning contrivances," in which fire doubtless was meant to play the principal part. So, at least, says Fuller, in his "Worthies" as to the ambassador, and Evelyn, on hearsay, in his "Sylva," as to the Armada. But whether true or not, the anecdotes show the estimation in which England herself held the Forest of Dean in olden times. It remained, however, for a native "armada" of plunderers and others to devastate the ancient forest, and—

"During the earlier half of the last century the devastations were so rapid as to necessitate re-enclosing and replanting various parts, about the year 1760; but the effort to re-stock the whole of the forest as it now appears was reserved to 1810 and the thirty subsequent years. Its present aspect, with very few exceptions, is such as to afford the best hopes that by the close of the present century a large proportion of the woods will be yielding profitable timber, provided the crops be duly protected from injury, which otherwise the rapidly-increasing population of the neighbourhood will too surely occasion. Nine-tenths of the present stock are oaks: the rest are Spanish chesnuts, Scotch fir, larch, spruce, beech, and a few elms, sycamores, and horse-chesnuts: birch grows spontaneously in most parts of the forest."

The Boy's Own Toy-Maker. By E. LANDELLS; Author of the "Child's Own Toy-Maker." With numerous engravings. London: Griffith and Farran, St. Paul's Churchyard. 1859.

THIS little volume forms an extension of a really good idea, whereby children and youth may acquire something like a constructive power with their hands; and, while thus learning handy habits, obtain a varied and never-ending source of amusement for themselves and their associates. The present volume, besides the formation of paper and card-board toys, as of rustic cottages, card-racks, kites, &c., gives instructions for the construction of all sorts of miniature shipping, angling and trapping apparatus, archery, and other missiles, and games; practical puzzles, &c.; all illustrated with the pencil and graver, as well as with pen and print. As the author remarks, "the boy engaged in making a toy-house becomes half an architect in the knowledge acquired of the names and uses of forms and materials, which, without a model, he could hardly comprehend;" and we doubt not, that many a young reader to whom Mr. Landells's little volume will be presented as a capital Christmas gift, will remember, with a kindly regard in after times, and among the more serious affairs of life, the instruction thus imparted to him in his youth.

ILLUSTRATED BOOKS.

The White Doe of Rylstone; or, the Fate of the Nortons. By WILLIAM WORDSWORTH. Longman and Co. 1859.

IT would gladden the heart of the poet to see his creation set forth with such printing, paper, and illustrations as we have here. The latter are from the prolific hands of Mr. Birket Foster, with head-and-tail pieces by Mr. H. N. Humphreys, all engraved by Mr. H. N. Woods. Mr. Birket Foster is the most successful landscape artist on wood: in some respects he is not approached by others; but working to such an extent as he does, sameness, at times, is inevitable. Those who are in search of an elegant present-book, which will be an evidence of their taste as well as of their liberality, will find it in this beautiful edition of "The White Doe of Rylstone."

DRAINAGE PAMPHLETS.

THE publications now to be noticed are mostly reprints.

"Will the Thames be purified under the New Act?" (Stanford, Charing Cross) is a report from the *Morning Post* of 23rd November last, of Sir William Worsley's views on this subject, in which Sir William gives it as his opinion that the drainage from the pockets of the rate-payers will be the most material operation effected under the new Act; and he says, he "cannot but stand aghast at the gigantic leap in the dark about to be perpetrated without any commensurate object, unless it be an enormous outlay." His own scheme, we may here just briefly note in passing, in his own words, comprises, in a restricted form,—

"1. A tidal quay dam in Blackwall Reach, of sufficient elevation to keep the up-river full to high-tide level with down Thames water, and to prevent tidal floods over the low-level tidal districts.

"2. An intercepting sewage and rainfall culvert down on each side of the river, communicating at right angles with the present sewers, and built in terrace embankments faced by quay walls, from a suitable distance above the town to London-bridge, and thence to the final cesspools."

"The Scientific Drainage of Towns," by John Hitchman, esq. Surgeon, Leamington, dedicated to the Metropolitan Board of Works, and to the sanitary boards generally throughout the kingdom, proposes "the complete separation of the sewage from the surface water, in the metropolis, and in cities and towns generally. The scheme comprises the daily removal out of London, &c. of the whole of its sewage, by steam power and iron tubes, commencing on each side of the Thames, and continued under the queen's highway, direct to outfalls into the sea, at least twenty-four miles from London; the sewage being used extensively to irrigate the land, through the counties of Kent and Essex in its progress downwards." The pamphlet mainly consists of a series of letters reprinted from the *Leamington Spa Courier* of the present year.

"The Hydro-dynamics of Blue Books and of the Metropolitan Drainage Reports," by John Neville, Dundalk, is a reprint from the *Civil Engineer* and *Architect's Journal* for the present month. "With reference to the experiments in the report," says the author, "they want, in a scientfic sense, that clear, definite character as to the plans and sections of the weirs experimented upon, the forms of the approaches and weir-crests, the means of determining the head and velocity of approach, and how measured—so essential to accuracy, and so carefully given by Francis in his 'Lowell Hydraulic Experiments.' I would not, however, have here drawn attention to this portion of the subject, but for the extraordinary doctrine before mentioned, that $\frac{2}{3}\sqrt{2gh}$, and not $\sqrt{2gh}$, is the greatest velocity gravity is capable of communicating to a jet from a small submerged orifice, and that $\frac{4}{5}\sqrt{2gh}$, and not $\frac{2}{3}\sqrt{2gh}$, is the mean theoretical velocity through an overfall notch, to the credit of which, whatever that shall be, the Messrs. Hawksley, Bidder, and Bazalgette are fully entitled."

Mr. Haywood, the engineer and surveyor of the London City Sewers Commission, in a printed report now before us, "Upon the Application of Charcoal to the Ventilation of Sewers," addressed to the Improvement Committee of the Commission, recommends the committee, *if* they "consider that the result to be gained will be commensurate with the estimated cost," to "select a limited district, adopt the existing ventilators in the first place, add to their number, and perfect the system to such an extent as may be practicable, and watch and record the results before adopting it for the whole city." Mr. Haywood does not appear to be very strongly impressed either with the merits of charcoal as a destroyer of sewer gases, or with the demerits of these gases themselves as they exist in or emanate from the sewers.

Miscellanea.

PRESENTATION OF A TESTIMONIAL AT SUNDERLAND.—The workmen employed in re-constructing Wearmouth Bridge have presented an address and a silver snuff-box to Mr. John Hosking, engineer for Messrs. Hawks, Crawshay, and Sons, Gateshead, who have the contract for the iron-work.

COTTAGE IMPROVEMENT.—The half-yearly report of the Hastings Cottage-improvement Society, for the six months ending October 7th, 1858, tends to show that it is possible by careful management to make a cottage-improvement society remunerative to those concerned. The shareholders have again received a half-yearly dividend at the rate of six per cent. per annum clear of income-tax. Dr. Greenhill acts as secretary.

NORTHERN ARCHITECTURAL ASSOCIATION.—At a meeting of architects of the counties of Northumberland, Durham, and Newcastle-upon-Tyne, held recently, those present unanimously resolved to form themselves into a society, to be called the "Northern Architectural Association," and twenty-six gentlemen have subscribed their names as members. A meeting will be held on Tuesday, the 4th day of January, 1859, to arrange the constitution of the society, and will afterwards dine together. Mr. Oliver is acting as honorary secretary.

THE WOLSEY BELL AT SHERBORNE.—We regret to state, says the *Bath Chronicle*, that the big bell, the gift of Cardinal Wolsey, and the pride and boast of Sherborne, terminated its career on Sunday evening in last week: as the ringers were ringing for service it cracked, so that it is no longer fit for use.

FIFTEENTH CENTURY ALTAR.—"An artistical treasure," says the *Indépendance* of Brussels, "has just been discovered in Hungary. It is an altar, on the double doors of which are paintings by one of the most celebrated German painters of the fifteenth century—Michel Wohlgemuth, the master of Albert Durer. There are in all forty-eight small sketches, twelve of which, representing in an epic series the life of St. Elizabeth of Hungary, are by the master himself."

DURHAM CATHEDRAL.—At length the parapet of the central tower of the cathedral which has for some time had the appearance of being out of repair, has been entirely taken down. It proved to be nothing more than a heterogeneous mass of brickbats, dirt, and cement, held together by pieces of iron. A considerable portion of the tower is yet covered with cement, put in by our forefathers of fifty years ago. Of Atkinson, the architect, at whose instigation this was effected, the Rev. Dr. Raine says,—"He could write of chemistry, of the effect of the weather upon old stones newly faced, of the preservative virtues of moss and lichens, in sensible terms, and he could quote 'Burke on the Sublime and Beautiful,' with propriety, but then he was an advocate for Parker's cement, and with this material he was suffered to encase the upper stage of the tower." It is the intention of the Dean and Chapter to replace the old parapet by a new one of stone, but the tower will remain in its present state during the winter. We hope that, when the work of restoration is commenced, it will extend to all those portions which are of cement.—*Durham Advertiser.*

XYLOPLASTY, OR VENEER-EMBOSSING.—This invention, also termed by its author, M. Amies, "*placage en rélief*," consists in placing thin plates of wood (veneers) between two matrices or dies, one of them bearing, in relief, the figure or ornament to be produced; and the other, the same figure sunk or indented. Both dies are gently heated, and the thin sheet of wood between them is subjected to a high pressure; so that when taken from the mould, it bears on its upper surface a sharp impression, having the appearance of carving in wood. The hollows are filled up with a plastic substance, such as mastic or papier mâché (in pulp), and when dried and polished, the ornament may be fixed on any article of furniture, &c. The veneer when embossed is made moist by means of a layer of paste and paper on the under side.

SEWAGE GASES AND SMOKE CONSUMPTION.—A correspondent, Mr. John Malam, suggests that a vacuum should be caused in all sewers to extract the destructive gases, by taking advantage of the present draughts of every available kitchen flue, in connecting the latter to the former by means of 2-inch sanitary tubes. This has been more than once suggested before in our columns; but we should be sorry to see it acted upon, from the dangers inseparable from such an arrangement. Another point in reference to smoke prevention which has also already been urged in our columns, is thus put by Mr. Malam: "The smoke-consuming apparatus converts the harmless carbon into two most fatal invisible gases, viz. carbonic acid, and carbonic oxide, which tend not to purify but to poison the atmosphere most effectually. If the accumulation of the carbonic acid of the expelled breath be the most hurtful of all aërial poisons in crowded, ill-ventilated rooms, and tend to cause deformity, disease, premature death, &c. how can the consumption of smoke, and its change to carbonic acid, carbonic oxide, &c. be considered as a sanitary measure conducive to health?" On the other hand, soot or carbon is a noted deodorizer and disinfectant. These points have been more than once offered for consideration in the *Builder* in reference to the smoke-prevention question. They were also, not long since, urged in a sanitary pamphlet at Manchester. Another correspondent, C. T., proposes, for the deodorization or destruction of the sewage gases within the sewers, that a small gutter for deodorizing solutions be fixed within the vault of the sewers, so as to distribute the chemical solution slowly along their course from tanks at the upper ends of their gradients. This might be an effectual mode of accomplishing the very desirable object in view; but it would be a very costly one. Sewage, we suspect, must either be dealt with at its origin, in the dwellings and house-drains, or at its issue from the sewer outlets.

Glasgow Archæological Society. — The usual monthly meeting of this society was held on the 6th inst. Mr. J. T. Rochead, in the chair. A number of new applications for admission to the society were disposed of, and the secretary laid upon the table several donations. Mr. Hill then read a paper "On the Letter of Guildry, and the origin of the Merchants' and Trades' Houses of Glasgow," and illustrated his views on this subject by several ancient MSS.

Braham's Stencil-plates for Architects.—To save the time swallowed up in properly writing to architectural and engineering drawings, Messrs. Braham and Co. of 5, Taunton-place, Regent's-park, are now manufacturing copper stencil-plates, which answer the purpose better than any we have yet seen, both as to fineness of execution, regularity, and form. By aid of these, what was the labour of a day may readily be knocked off in an hour. They not only provide alphabets in every style, from plain to the most ornamental, but have prepared all the words requisite in architects' and engineers' offices, for plans, sections, elevations, specifications, scales, and cardinal points. We feel quite safe in recommending Messrs. Braham's plates to those who need such aids.

Surbiton Sewerage Competition and Aldershott.—Sir: Having noticed your paragraph relating to the above, I beg to inform you, in *partial justice* to the Board, that the plans were *only* sent in on the 17th of July last, by postponement from the former date, mentioned by you. I should also be glad to learn what has been the fate of the "ten elaborate designs" submitted (*sic* a local paper); and I presume such things can be legally reclaimed. In reference to a kindred matter, the Aldershott Sewerage Competition, for which the plans were sent in on the 1st of April last, and of which the works have been advertised for tenders in your paper, I have never seen any notice of the result thereof, and shall feel obliged if any of your subscribers can supply the particulars.—A Competitor.

Pressure on Marine Telegraphs.—It may be very true what your correspondent, Mr. Jeakes, says about pressure on metals, but with gutta-percha or indian-rubber it is different: the pressure being from the outside, has a tendency to close the pores if there should be any; so that in fact it becomes more compact, and sustains a much greater pressure than people at first sight would believe. It is not so much the fault of insulation nor the electrical department as the absurd principle on which the cable is constructed. After they have spent another half million, and laid another worthless rope in the sea, perhaps they will open their eyes to something better.

J. W.

Gratitude and the Fibrous Slab.—We have received a communication purporting to come from Captain Claxton, R.N. and signed "A Shareholder," complaining of the omission of mention of the intended use of the patent Fibrous Slab in our article last week descriptive of progress in the new Adelphi Theatre; further stating that its use in the dome of the British Museum Reading-room and in Covent Garden Theatre was also unnoticed, and requesting us, as "the directors advertise" in our columns, that we would inform them "who they ought to have *fee'd* to get common justice done to the patent." If Captain Claxton had been a reader of the *Builder*, he would probably have avoided committing this vulgar impertinence. He is probably not aware that the Fibrous Slab was first made favourably known to the public by a paragraph in this journal, which was reprinted in a hundred quarters (we do not exaggerate), and led us into an immense amount of correspondence in reply to inquiries, without, as usual, the slightest acknowledgment of thanks on the part of the proprietors. In connection with both the buildings named by this person, its use was described, as it will be if we find it in the Adelphi hereafter: most certainly it was not there when our account was written. It is to be hoped that the affairs of the company are in wiser hands than those of Captain Claxton, R.N.

To prevent burrowing of Rats.—Sir: In answer to your correspondent as to a preventive against rats burrowing under the foundations, and coming up through the floors of houses,—Lay over the whole surface beneath the floors a concrete 3 inches thick composed of Portland cement and gravel shingle, washed through a very coarse sieve, in the proportion of 1 cement to 5 of shingle. Care must be taken that all mud or clay is washed from the shingle before mixing. This concrete, with a little extra labour, forms an excellent floor.

J. H. Gates.

Society for the Encouragement of the Fine Arts.—The provisional meeting of the new society is to be held this Friday evening, the 17th, in the Hanover-square Rooms, when music and the exhibition of drawings are to vary the ordinary business of a public meeting.

Conservative Land Society.—At the sixth annual general meeting of this society, held on the 7th inst. the report stated that land purchases this year, after the commercial crisis of the first quarter, had been abandoned, the committee relying mainly on the interest of their 47,000*l.* making a total of 358,950*l.* 15s. 7d. and the withdrawals, about 68,000*l.* for the entire period of six years; whilst the sale of land amounted to about 220,000*l.* By the prudent policy of carrying interest yearly to the Reserve Fund, it still amounted to nearly 8,100*l.* an excess of its original figure. The report then specially dwelt on the greatly extended facilities afforded by the lending of money in large and small sums, under the Building Advances Department, and the opening of a Deposit Account Branch for those persons who did not wish to become members, as affording additional securities for the prosperity of the society, and making it independent of all political influences. The shareholders for the year receive five per cent. interest for their money, after having in previous years received alternately six and seven per cent. In all thirty-four estates had been bought.

The Roman Walls of Dax.—We are pleased to understand that this fine Roman circumvallation which was being pulled down when Mr. Roach Smith inspected it early in October, has, owing solely, as we understand, to his exertions, been respited by a decree of the Emperor; and now, no doubt, is safe. Two years ago and upwards M. Léo Drouyn and M. de Caumont made strenuous efforts to save the walls, but in vain: the story is to be found in the "Bulletin Monumental" of the latter gentleman. It is remarkable, that not one French archæological society ever moved two years ago to aid the efforts of M. de Caumont, not even the Société Française d'Archéologie, else, possibly, the Vandals of Dax would have been prevented destroying so much as they have succeeded in doing. The walls were wonderfully preserved, and the details are such as we do not now possess in those of Colchester, which, however, really deserve more attention than they receive, and should be cleared in the interior.

Prices in the Midland Counties.—I have been induced to purchase a copy of the "Midland Counties Price Book." Would any of your readers in that locality give a little explanation as to the following prices?—

Plain work Mansfield stone, per foot superficial,		6d.
Do. do.	(rubbed)	7d.
Beds and joints		5d.

For a proper understanding of the above, what is the local custom as to measuring beds and joints? Are every bed and both faces of a joint measured? or one face of a joint and half of each bed? Are the items, "circular and moulded work," supposed to be rubbed?—W.

TENDERS.

For New Building in Creed-lane, City, for Messrs. Fisher and Others. Mr. M. Horne, architect. Quantities taken out by Mr James Dudley:—

Childerhouse	£1,691 0 0
Field and Son	1,616 10 0
Turner and Sons	1,591 0 0
Pritchard and Co.	1,469 0 0
R. Ashby and Sons	1,429 0 0
Partridge and Crutch	1,397 0 0
Ashby and Horner	1,365 0 0

For Model Cottages, at Beddington. Mr. Joseph Clarke, architect:—

Fisher	£1,364 0 0
Arding	1,194 0 0
Foster	1,189 0 0
Punnett	1,143 0 0
King and Co.	1,120 0 0
West	1,115 0 0
Carruthers	1,035 0 0

Assize Courts, Berks.—Mr. Ruddle says he also sent a tender, 12,683*l.*

TO CORRESPONDENTS.

Odd.—A. W. (all right). — W. S. B.—C. A. W. — D. R.—L. E.—J. I. (shall have attention). — J. E.—S. C. C. (no copy reached us). — P. and W.—Dr. G.—Constant Reader.—H. J. P.—T. J.—H. W. K.—City Coal-tax (in type).

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c. should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and* NOT *to the "Publisher."*

ADVERTISEMENTS.

TO ARCHITECTS, ENGINEERS, COUNTY, BOROUGH, and DISTRICT SURVEYORS.—MR. L. FLOWER, C.E. and Architect, transacts TOWN AGENCIES, selects Assistants, and renders PROFESSIONAL AID generally. Surveys, Sections, &c. Maps, Plans, Drawings and Tracings. Perspectives drawn or tinted, &c. by the first artists only.—26, Charles-street, St. James-square, London, S.W.

TO JOINERS.

EXPERIENCED BENCH HANDS (none else need apply) may meet with EMPLOYMENT at J. E. HALL'S, Builder, Carrington-bridge, Nottingham.

JUNIOR CLERK WANTED.—An Architect, holding a public appointment, has a VACANCY for a JUNIOR CLERK as an IMPROVER. He must be a neat draughtsman. A moderate salary will be given.—Address, A. M. W. care of J. Johnson, 27, Falcon-square, E.C.

LEAMINGTON LOCAL BOARD of HEALTH.—To SURVEYORS.—The Local Board of Health are prepared to receive applications from Candidates for the office of SURVEYOR for their District. A scheme for the drainage of the district and improvements of the River Leam having been prepared, it will be part of the duty of the Candidate who may be appointed to carry out the same, if required. He must also be fully competent to prepare plans, drawings, estimates, and specifications of all works connected with the sewerage, paving, making, and preparing of the streets, as well as surface cleansing, and to superintend the execution thereof; test the materials, and see to the fulfilment of the conditions of the contracts for execution of such works. He will be required to report upon all new buildings within the district as to their drainage and levels, and upon cases of nuisance involving structural alteration for abatement thereof, as well as generally to possess a thorough knowledge of all the duties required of the Surveyor by the local and general Acts of Parliament, or by the bye-laws prescribed by the Local Board with reference to his department. He will also be required to superintend the town waterworks. The whole of his time must be devoted to the duties of his office. An Assistant is provided by the Board, as well as office accommodation. Candidates must send in Testimonials, addressed to the Clerk to the Local Board, endorsed "Surveyor's Application," and stating salary required, and age, before the 4th of January proximo. The Board do not bind themselves to accept any application.—By order. R. H. DAVIES, Clerk.

Town Hall, Leamington, 7th December, 1858.

WANTED, a SURVEYOR, to complete the Survey of a Town and Suburbs in Lancashire. He must be able to use a theodolite, and to make a neat draft plan. Engagement for twelve months.—Address, stating terms, and with references, to A. A. Office of "The Builder."

TO ENGINEERS.

WANTED, by the Hastings Local Board of Health, a thoroughly Practical, Mechanical, Working ENGINEER, to attend to a pumping-engine of thirty-horse power, at the Water-works. He will be required to devote the whole of his time to the said works. Wages, 25s. per week, with house, coals, and gas provided. Candidates for the above office must send their applications in writing, with testimonials, on or before the 23rd day of DECEMBER instant, addressed to "The Town Clerk, Hastings," where further particulars can be obtained.

ROBERT GROWER, Town Clerk.

Hastings, 13th December, 1858.

TO SLATE MASONS.

WANTED, for the country, TWO good HANDS, accustomed to prepare work for enamelling, and to fix out, &c. Liberal wages and constant employment, guaranteed by twelve months' engagement. Honesty, sobriety, and steadiness indispensable.—Apply by letter, pre-paid, to A. B. care of Mr. Hindley, Stationer, Giltspur-street, Smithfield, London.

TO CARPENTERS.

WANTED, for a Gentleman's Estate, a HEAD CARPENTER. He must have a thorough knowledge of his trade in all its branches, the constructing of buildings, &c. One who has been working where a saw bench is used would be preferred. None need apply who cannot produce satisfactory certificates of abilities, sobriety, &c. &c.—Application to be made to Mr. WATSON, Lamport, Northampton.

WANTED, by a respectable Man, aged 31, of sober, steady, and active habits, a SITUATION as WORKING FOREMAN of BRICKLAYERS, being well acquainted with all its branches, and having a thorough knowledge in laying all kinds of stonework. Good references as to character and ability.—Address, M. B. 8, Bristol-place, Maida-hill, Paddington. Town, country, or abroad, as required.

TO CARPENTERS AND BUILDERS.

WANTED, an ENGAGEMENT, as SHOP FOREMAN. Is well acquainted with stairs, and the prices of piece-work. Can make out estimates. Good references.—Address, J. F. Office of "The Builder."

TO BUILDERS, &c.

WANTED, a SITUATION as GENERAL FOREMAN, by trade a JOINER. A ten years' testimonial from last employer. Age, 34.—Address, J. C. R. 19, Westbourne-street, Pimlico, S.W.

TO ARCHITECTS AND CIVIL ENGINEERS.

WANTED, a SITUATION, by a Young Man, who is a good Architectural and Mechanical DRAUGHTSMAN, competent to get up detail and working drawings. Address, V. W. Deacon's News-rooms, Leadenhall-street, City, E.C.

WANTED, by a Builder's Son, a SITUATION in an ARCHITECT'S or BUILDER'S OFFICE. Writes well, and has a good knowledge of drawing.—Address, A. T. B. 8, Lower Wood-street, Exmouth-street, Clerkenwell, E.C.

TO BUILDERS, &c.

WANTED, a SITUATION as SHOP or GENERAL FOREMAN, or to take charge of a job, the Advertiser having a thorough knowledge of the trade in all its branches. No objection to the country, or to take any quantity of piecework.—Address, P. J. 75, Praed-street, Paddington.

WANTED, a Permanent SITUATION, by a Young Gentleman, who is just out of his apprenticeship, in an ARCHITECT'S OFFICE.—Address, J. M. Post Office, Oxford-road, Manchester.

TO BUILDERS.

WANTED by a Young Architect, a SITUATION in a BUILDER'S OFFICE, where a portion of his time would be considered an equivalent to the practical knowledge he is desirous of obtaining.—Address, L. S. E. Office of "The Builder."

TO CONTRACTORS AND BUILDERS.

THE Advertiser, 27 years of age, seeks an ENGAGEMENT, either at home or abroad. Has been extensively engaged as a builder under the first architects, and has a thorough practical knowledge of building and construction generally. First-rate references.—Address, X. E. Office of "The Builder."

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